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ABSTRACT

The Integrated Quality Control Measurement Project (IQCMP) of the U.S. Department of Education measured the quality of awards distributed during the 1988-89 award year under the three major Title IV programs: the Pell Grant program, the Campus-Based programs, and the Stafford Loan program, in order to evaluate and improve the quality of the delivery of Title IV financial aid. The study used a nationwide sample of recipients (3,310 students) and obtained data on each from financial aid administrators, financial aid records, interviews with students and parents, and additional sources. Findings indicated that: approximately 10.9 percent of the $15.4 billion dollars awarded was awarded in error; certain items on the application and certain steps in the award calculation process were error-prone; Integrated Verification, the primary procedure for verifying student application data, was poorly targeted to students with error; and certain groups were more likely than others to have an error in their award though these groups were generally not selected for verification more often than others. Changes that could decrease the error rate are simplification of the delivery system and placing more responsibility for quality control on educational institutions. Included are 61 exhibits; in addition, appendixes list student marginal error, variables associated with error, Federal Government costs per dollar of Stafford Loan, and examples of contingency table analysis. (JB)

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ED340307

U.S DEPARTMENT OF EDUCATION

FINDINGS AND CORRECTIVE ACTIONS

INTEGRATED QUALITY CONTROL MEASUREMENT PROJECT

September 28, 1990

Prepared by:

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Price Waterhouse

September 28, 1990

Ms. Karen Chauvin
Project Officer
Department of Education
7th and D Streets, S.W.
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Washington, DC 20202

Dear Ms. Chauvin:

We are pleased to submit our Findings and Corrective Actions report for the Integrated Quality Control Measurement Project. This report contains our findings from our analysis of the Title IV student financial assistance delivery system and a discussion of corrective actions that have been designed to reduce error in the delivery system. If you have any questions or comments on this report, please contact Dr. Glenn Galfond or Ms. Valerie Smith at (202) 296-0800.

Yours very truly,

Price Waterhouse

FINDINGS AND CORRECTIVE ACTIONS
INTEGRATED QUALITY CONTROL MEASUREMENT PROJECT

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SUMMARY

The Title IV student financial assistance programs provided $15.4 billion in loans, grants, and work-study support to postsecondary students during the 1988-89 award year. To evaluate and improve the quality of the delivery of Title IV financial aid, the U.S. Department of Education contracted with Price Waterhouse to conduct the Integrated Quality Control Measurement Project (IQCMP). IQCMP measured the quality of awards distributed during the 1988-89 award year under the three major Title IV programs: the Pell Grant program, the Campus-Based programs (Supplemental Educational Opportunity Grant, College Work-Study, and Perkins Loan), and the Stafford Loan program.

IQCMP relied on a nationwide sample of Title IV recipients. For each sampled recipient, documentation was collected from educational institutions, students and parents, the Internal Revenue Service, and other sources to support or refute the data used to calculate the financial aid award. Error in the delivery of financial aid was then calculated based on the difference between the award actually distributed and the award that would be calculated based on the best available data.

IQCMP found that approximately 10.9 percent of the $15.4 billion dollars awarded through the Title IV programs was awarded in error. This error was decomposed by program and source of error. Certain items on the financial aid application and certain steps in the award calculation process were found to be particularly error-prone, and alternative approaches to reducing these errors were identified.

Integrated Verification, the primary procedure for verifying student application data, was found to be poorly targeted to students with error. While dependent students and students with large family income were much more likely than other students to have an

error in their award, these error-prone groups were generally not selected for verification more often than other student groups.

Although error rates have decreased over time, the complexity of the current delivery system ensures that, unless major changes are made, error will remain substantial. Two such changes are simplification of the delivery system and placing a larger responsibility for quality control on educational institutions. We found evidence that both types of changes could be successful. First, we found that it was possible to simplify the financial aid application without introducing significant changes to the distribution of financial aid awards. Secondly, we found that many educational institutions currently have a significant commitment to quality. However, such major changes to the delivery system will require legislative action. We recommend that the Department of Education review its goals and determine whether such changes are warranted.

I. INTRODUCTION

A. The Integrated Quality Control Measurement Project

1. Background and Objectives

The Integrated Quality Control Measurement Project (IQCMP) is the most recent in a series of quality control studies conducted by the U.S. Department of Education (ED) to evaluate the quality of the delivery of Title IV student financial assistance. IQCMP evaluated the following Title IV programs for the 1988-89 academic year:

- The Pell Grant Program,
- The Campus-Based Programs (Supplemental Educational Opportunity Grant, College Work-Study, and Perkins Loan), and
- The Stafford Loan Program (formerly the Guaranteed Student Loan Program).

These Title IV programs distributed over $15.6 billion in grants, loans, and work-study to over 5.5 million students attending postsecondary institutions during the 1988-89 award year. Exhibit I-1 presents a breakdown of dollars and awards by program. Over 8,000 postsecondary institutions and more than 10,000 lending institutions and guarantee agencies participate in the delivery system.

The study was sponsored by the Statistical Analysis Branch of the Division of Quality Assurance in the Debt Collection and Management Assistance Service of the Office of

TITLE IV AID AVAILABLE TO STUDENTS

Award Year 1988-89

Program	Aid Available (in Millions of Dollars)	Number of Awards	Average Award (in Dollars)
Pell Grants	4,863	3,302,000	1,473
Campus-Based			
Work Study	780	835,000	934
SEOG	442	633,000	698
Perkins Loan	884	826,000	1,070
Total Campus Based	2,106	2,294,000	918
Stafford Loans	8,431	3,234,000	2,607
Total	15,400	8,830,000	1,744

Data from 1991 budget request provided by the Department of Education

Postsecondary Education, U.S. Department of Education. The study was conducted by Price Waterhouse in affiliation with The Gallup Organization and Pelavin Associates, Inc.

This document presents an overview of IQCMP, a summary of the findings on error in the delivery of Title IV student financial aid, and proposed corrective actions that are aimed at reducing error in future years. Detailed discussions on these topics can be found in other reports prepared as part of this project, including:

- IQCMP Error Definitions -- detailed definitions of each type of error examined during the project
- IQC Pilot Analysis -- an analysis of the Institutional Quality Control Pilot Project
- IQCMP Findings and Corrective Actions -- a detailed discussion of findings on error in the delivery of Title IV student financial aid and corrective actions aimed at reducing error in future years.

2. IQCMP Methodology

The IQCMP relied on a nationwide sample of 3,310 students attending 350 postsecondary institutions to make inferences at the national level about the quality of the award process for the various Title IV financial aid programs. For each sampled student and institution, data was collected from the following sources:

- Financial aid administrators at each institution were interviewed about the institution's financial aid policies and procedures.

- Information from the school's financial aid records was abstracted for each of the sampled students. Inconsistencies in the institution's financial aid records were discussed with the financial aid administrator to obtain an explanation or to confirm an error.

- Interviews were conducted with sampled students and their parents. During these interviews, students and parents were requested to show documents verifying the data reported on the student's financial aid application.

- Additional information from sources such as the IRS, financial institutions, and property tax assessors was also collected to confirm or refute data reported on the student's financial aid application.

Information from all sources was combined into a comprehensive database. This database was used to calculate "best" award values (based on the most reliable information collected from among the various sources) and to make projections of differences between best awards and actual awards received.

B. Definitions of Error in IQCMP

1. IQCMP Error Measurement Philosophy

The objective of IQCMP is to measure the quality of the financial aid delivery system and to identify steps that can be taken to improve quality. The term "error" as defined in IQCMP therefore refers to a deficiency in quality, which is a much broader definition of error than that included in the Title IV regulations.

In general terms, error is defined to be the extent to which the delivery of Title IV aid differs from that intended under the Title IV regulations. This definition includes the

following types of error:

- Institutional Liability Error -- A limited group of errors defined in the Title IV regulations. Institutions who commit liability errors must reimburse the Federal government for the amount of the error.

- Institutional failure to follow the Title IV regulations -- A failure on the part of the institution to follow the Title IV regulations, even though that failure is not a liability error. These errors include incorrect calculation of the financial aid award, failure to ensure student eligibility, and failure to maintain documentation required under the regulations.

- Institutional failure to follow its own award policies -- A failure by the institution to follow its own policies for Title IV aid, even though that failure may not violate the Title IV regulations.

- Intentional student reporting errors -- An intentional failure by the student to report the correct data on his or her financial aid application. Under the Title IV regulations, students are held accountable for these errors and may be subject to fines and/or imprisonment.

- Unintentional student reporting errors -- An unintentional failure by the student to report the correct data on his or her financial application. Under the Title IV regulations, the student's aid award should be adjusted if unintentional errors are found during verification of the student aid application. However, the student is not subject to fines or imprisonment.

- Errors in estimates and projections -- The award calculation relies in part on estimates (e.g., estimates of the value of a student's home, other real estate investments, etc.) and projections (e.g., the household size for the upcoming academic year, outside financial assistance for the upcoming academic year, etc.). Incorrect estimates and projections, if made in good faith, do not represent errors under the Title IV regulations. IQCMP includes incorrect estimates and projections as errors in order to evaluate the extent to which financial aid awards are consistent with the intent of the Title IV program.

2. Definition of Error Measures

Three[1] measures of error are used to describe the quality of the Title IV programs:

- Pell Payment Error -- error in payments from the Pell program.
- Campus-Based Need Error -- the extent to which the calculated student financial need differs from the best financial need. Under the Title IV regulations, the Campus-Based award may not exceed financial need. Due to limited funding, however, Campus-Based awards frequently do not fully meet the student's financial need.
- Stafford Loan Overcertification Error -- the extent to which the calculated Stafford Loan certification amount (the maximum loan amount available to the student) exceeds the best certification amount.

Each of the three types of error listed above is broken down according to three different error sources:

- Student Error -- error resulting from inaccurate data reported by the student recipient.
- Institutional Error -- error resulting from inaccurate processing by the institutions or from improperly applying institution packaging guidelines.
- Overall Error -- error resulting from either student or institutional error as defined above.

It should be noted that student error and institutional error do not necessarily sum to the overall error because errors made by students and institutions do not always have an additive effect on the overall award. All errors presented in this report are calculated

[1] Four other types of error (Composite Error, Campus-Based Distributional Error, Campus-Based Awards in Excess of Need, and Stafford Loan Overawards), as well as more detailed breakouts of error, are discussed in IQCMP Findings and Corrective Actions.

with a $50 tolerance; that is, a best award within plus or minus $50 of the actual award is treated as zero error.

This Executive Summary presents results for absolute[2] error, which is the sum of overawards and underawards (where both overawards and underawards are considered to be positive). Due to limitations in available data, only overcertifications are included for Stafford Loan Certification Error.

[2] Breakouts of overaward error and underaward error are discussed in IQCMP Findings and Corrective Actions.

II. ERROR IN THE TITLE IV FINANCIAL AID PROGRAMS

Exhibit II-1 presents a summary of absolute error for each of the three Title IV programs. This chart shows the overall, student, and institutional percent of dollars in error and percent of recipients with error as well as the total dollars and the total number of awards for each of the programs. Note that Campus-Based need dollars and Stafford Loan certification dollars are estimates. Errors in these two programs may not translate directly to dollars awarded in error because there is often some need left unmet in the Campus-Based programs and students are free to request Stafford Loans for amounts less than the full certification amount.

As shown in Exhibit II-1, the percentage of dollars that are in error is lowest for Stafford Loan overcertifications, 9.6 percent. In comparison, the percentage of dollars that are in error is 9.9 percent for the Pell Grant program and 11.3 percent for Campus-Based need error.

The percent of recipients with error is also lowest for the Stafford Loan program. Only 18.3 percent of Stafford Loan certification recipients have an overcertification error. This compares to 51.0 percent of the Campus-Based recipients that have need error and 28.2 percent of the Pell recipients that have an error.

ABSOLUTE ERROR IN THE TITLE IV PROGRAMS

AWARD YEAR 1988-89

TYPE OF ERROR	PERCENT OF TOTAL DOLLARS IN ERROR			TOTAL DOLLARS[1] (in billions)
	OVERALL	STUDENT	INSTITUTIONAL	
Pell Grant	9.9	7.5	2.6	4.9
Campus-Based Need	11.3	5.7	6.2	5.8
Stafford Loan Overcertifications	9.6	4.2	6.0	9.0

[1] Estimated total value of Pell Grant awards, Campus-Based need, and Stafford Loan certifications for the 1988-89 award year. Pell award estimates were provided by Department of Education. Other estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates, Inc. and The Gallup Organization.

ABSOLUTE ERROR IN THE TITLE IV PROGRAMS

AWARD YEAR 1988-89

TYPE OF ERROR	PERCENT OF RECIPIENTS WITH ERROR			TOTAL AWARDS[1] (in millions)
	OVERALL	STUDENT	INSTITUTIONAL	
Pell Grant	28.2	24.8	4.6	3.3
Campus-Based Need	51.0	37.6	20.9	2.2
Stafford Loan Overcertifications	18.3	11.5	9.6	3.2

[1] Estimated number of awards made during the 1988-89 award year. Estimates of the number of awards made were provided by Department of Education. Other estimates are from the Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates, Inc. and The Gallup Organization.

Exhibit II-1 also reveals differences between student and institutional error rates for the three programs as follows:

- Of the three programs, the Pell Grant program is the only program in which errors attributable to institutions accounts for a smaller share of dollar error (2.6 percent of Pell dollars) than does error attributable to students (7.5 percent of Pell dollars).
- The amount of student Campus-Based need error, 5.7 percent of need dollars, is almost equal to the amount of institutional Campus-Based need error, 6.2 percent of need dollars.
- The overcertification rate attributable to institutional error in the Stafford Loan program is 6.0 percent of the dollars certified, while the overcertification rate attributable to student error is only 4.2 percent of total certification dollars.
- For all three programs, the percent of recipients with error is higher than the percent of dollars in error.
- The percent of recipients with error, among the three programs, is highest for Campus-Based need error, 51 percent. More Campus-Based recipients had need error attributable to students, 37.6 percent, than institutions, 20.9 percent.
- The error rate for institutional error in the Pell Grant program is 4.6 percent of recipients. This rate is much lower than the student error rate of 24.8 percent of recipients.

Although these error rates are relatively low, and have decreased from the error rates estimated during previous studies, the IQCMP results still show that there is a significant amount of error in the Title IV delivery system. The nature of the student aid delivery system makes the system inherently error prone, but some of this remaining error may be reduced through further improvements in the procedures and methods used in

awarding student financial assistance. The improvement in error rates will rely, in part, on the types of restructuring that are completed. A summary of our recommended actions to reduce error is presented in Section VII of this report.

III. SOURCES OF ERROR IN THE TITLE IV FINANCIAL AID PROGRAMS

A. Overview

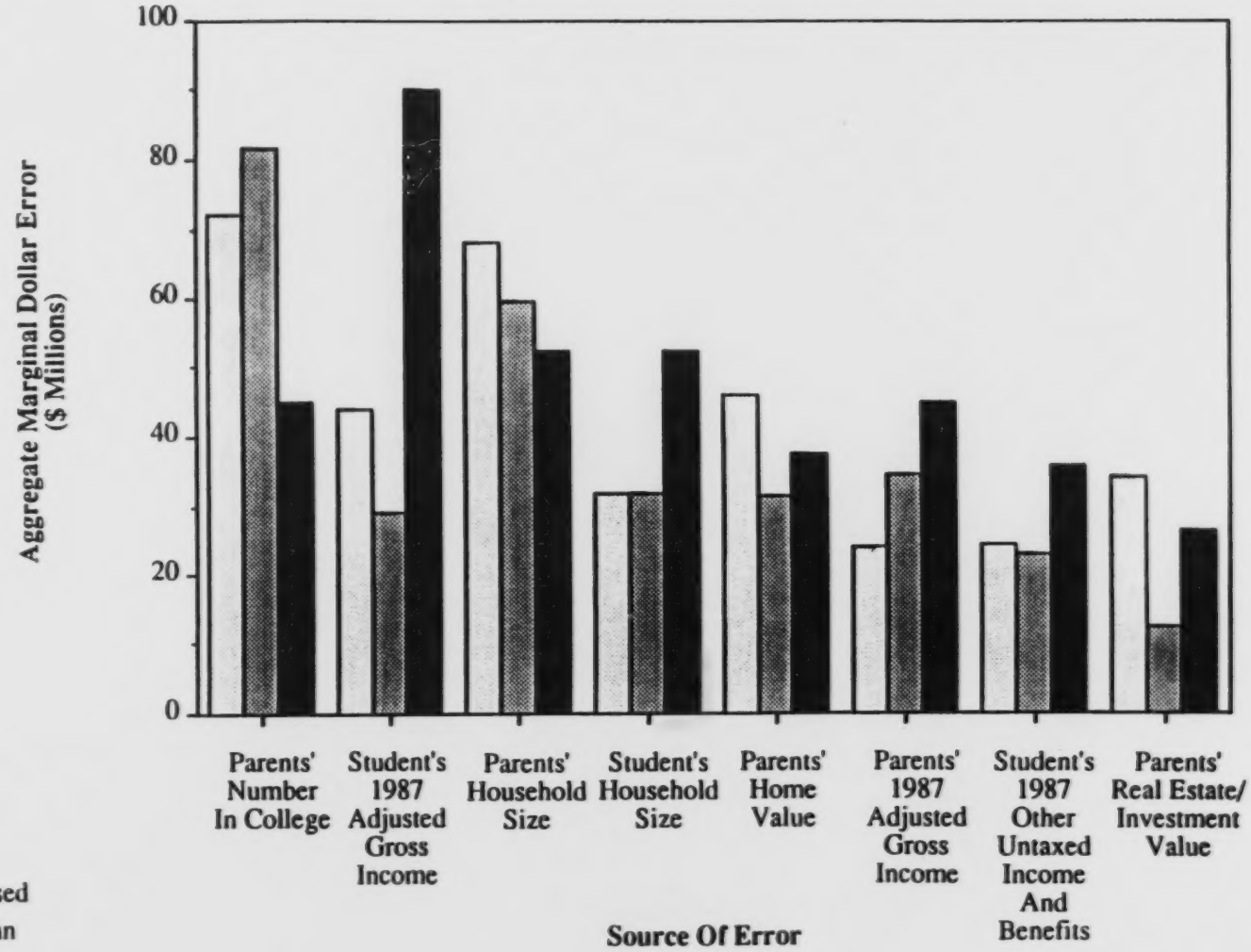
Marginal error measures the effect of errors caused by individual data items used in award calculation and disbursement. This chapter examines marginal error for both students and institutions. Student marginal error is calculated by comparing the award that would be computed from all reported data to the award that would be computed after correcting a single application item. Institutional marginal error is calculated in a similar manner. Although each marginal error represents a component of overall error, marginal error will not sum to overall institutional and student error because:

- some errors may cancel other errors,
- some errors tend to occur in combination with other errors, and
- some errors have a carryover effect on other errors (i.e., by being in error they will, by definition, cause other items to be in error).

B. Student Marginal Error

All student marginal errors were calculated using a $50 tolerance, and measured for their effect on Pell absolute award, Campus-Based need, and Stafford Loan overcertification. Exhibit III-1 presents the variables with the highest marginal absolute errors (in dollars) across the three programs. Examination of the significant student marginal errors led to the following findings:

Most Significant Sources of Student Marginal Error (1) Across Programs Award Year 1988-1989



(1) As measured by absolute dollar error in Pell Award, Campus-Based Need and Stafford Loan Overcertification

Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.

EXHIBIT III-

- Student's adjusted gross income for the Stafford Loan program accounts for the greatest error among those variables reported by all students. This variable is also a large source of error in the other two programs.

- Parents' adjusted gross income is a large source of error in all three programs, but this variable does not account for as much error as does student's adjusted gross income. One reason for this difference is that parent values are reported for dependent students only.

- Parents' number in college and parents' household size are associated with the highest levels of student error in both the Pell and Campus-Based programs and are a large source of error for the Stafford Loan program.

- Although student's household size is also a significant source of error in the three programs, the amount of dollars in error attributable to this variable is less than the amount of dollars in error attributable to parents' household size.

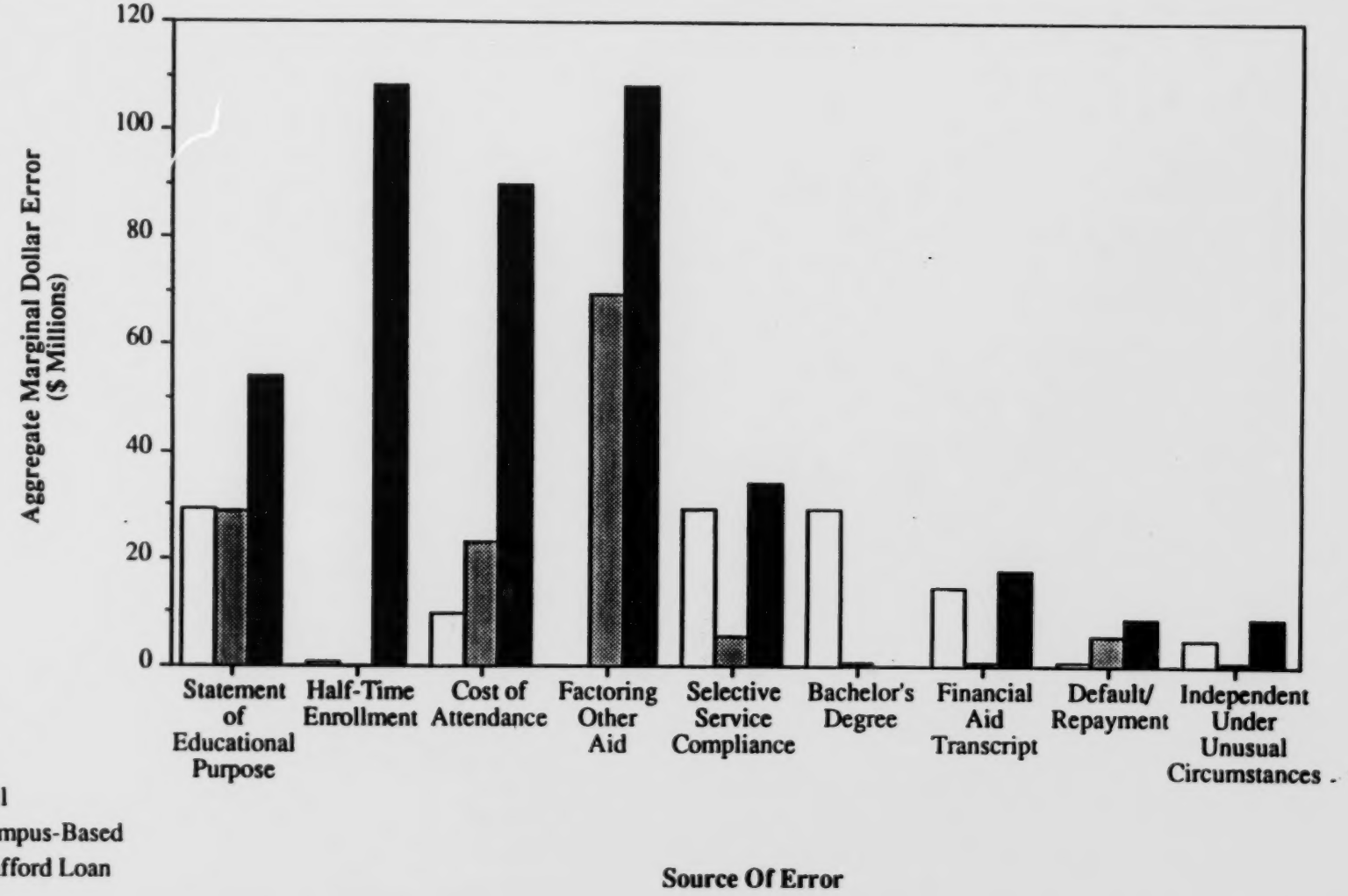
- Both parents' home value and parents' value of other real estate and investments contribute a large amount to dollars in error in all three programs.

- Student's other untaxed income and benefits for 1987 are also significant contributors to error.

C. Institutional Marginal Error

All institutional marginal errors were calculated using a $50 tolerance and were measured for their effect on Pell absolute award, Campus-Based need, and Stafford Loan overcertification. Exhibit III-2 presents the variables with the highest marginal absolute errors (in dollars) across the three programs. An examination of the significant institutional marginal errors leads to the following findings:

Most Significant Sources of Institutional Marginal Error[(1)] Across Programs Award Year 1988-1989



(1) As measured by absolute dollar error in Pell Award, Campus-Based Need and Stafford Loan Overcertification

Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.

EXHIBIT III-2

- Errors in factoring other aid (i.e., using the correct amount of aid previously awarded to the student when packaging a Campus-Based or Stafford Loan) represent the largest total dollars in error for the Campus-Based and Stafford Loan programs. This error is not applicable to the Pell Grant program.

- Errors due to students not being enrolled at least half-time in a postsecondary institution are significant in the Stafford Loan program. This type of error was not applicable in the Campus-Based programs and was not observed for Pell Grant recipients.

- Using incorrect costs of attendance caused a large amount of dollar error in all three programs.

- Most of the other significant sources of institutional marginal error involved not having, or keeping, certain required documents. These documents included the statement of educational purpose, statement of registration for Selective Service, financial aid transcript, and documentation of independent status under unusual circumstances.

IV. ERROR PROFILE ANALYSIS

Error profile analysis uses multivariate models to identify the characteristics of students and institutions that are associated with error. These models are not intended to be used by ED to target students and institutions with error. Rather, multivariate models help to understand relationships between error and the characteristics of students and institutions. This analysis focused on predicting whether Title IV recipients had any of the following three types of error:

- Absolute Pell Program Error,
- Absolute Campus-Based Need Error, and
- Stafford Loan Overcertification Error.

Separate models were developed for student and institutional errors. Both models were formulated using the characteristics of both students and institutions that were believed to be related to error. For example, the variables examined while formulating the student model included:

- The information reported by the student on the financial aid application,
- The type of aid received by the student,
- The characteristics of the institution attended by the student (institution type and control),
- The procedures used by the institution to verify student data, and
- Questions from the student interview about the student's perception of the availability of the information needed to complete the application, the

complexity of the application, and the amount of help received while filling out the application form.

The variables considered during the formulation of the institutional error model included characteristics of the institution (e.g., type, control, region, etc.) and information on institutional procedures for processing and checking the award (level of automation, procedures for verifying that the correct information was in the student's financial aid file, staffing in the financial aid office, etc.).

A. Error Prediction Model for Student Error

Exhibit IV-1 presents the variables that were found to predict independent student error and the relative contribution of each level of the variables. Exhibit IV-2 presents the same information for dependent students. Highlights of these two exhibits include:

- Income has a strong relationship with student error. Independent students with income over $15,000 are predicted to have student error 18.7 percent more often than independent students with income under $7,500, and dependent students whose parents have income over $25,000 are predicted to have student error 30.8 percent more often than dependent students whose parents have less than $15,000 in income.

- Higher error rates were found for students or parents who filed a tax return, used estimated tax data rather than actual tax data, had untaxed income, or had significant real estate or investment assets.

- Students who received Pell and/or Campus-Based aid were more error prone than those receiving only Stafford loans. This result probably occurs because Stafford Loan overcertification error occurs less frequently than Pell error and Campus-Based need error.

EXHIBIT IV-1

Error Prediction Equation for Independent Student Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-15.8)

Total Student Income
- $0 - $7,500 (0.0)
- $7,500 - $15,000 (8.5)
- Over $15,000 (18.7)

Tax Form Filed
- Student filed a tax form (7.9)
- Student did not file a tax form (0.0)

Used Estimated Income Tax Data
- Used estimated tax data when filling in application (10.2)
- Did not use estimated tax data when filling in application (0.0)

Student's Untaxed Income
- Student has untaxed income (3.7)
- Student does not have untaxed income (0.0)

Indicator for Pell Award
- Student received Pell Grant (15.7)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (8.9)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (0.2)
- Student was not certified for a Stafford Loan (0.0)

EXHIBIT IV-2

Error Prediction Equation for Dependent Student Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-12.2)

Total Parent Income
- $0 - $15,000 (0.0)
- $15,000 - $25,000 (28.9)
- Over $25,000 (30.8)

Tax Form Filed
- Parent filed a tax form (9.9)
- Parent did not file a tax form (0.0)

Used Estimated Income Tax Data
- Student or parent used estimated tax data when filling in application (12.6)
- Neither student nor parent used estimated tax data when filling in application (0.0)

Net Value of Parent's Real Estate and Other Investments *
- $0 - $500 (0.0)
- Over $500 (0.5)

Indicator for Pell Award
- Student received Pell Grant (15.7)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (10.6)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (5.6)
- Student was not certified for a Stafford Loan (0.0)

* Includes the value (after debts) of investment real estate, cash, savings and checking accounts, and other investments. Does not include investments in homes, businesses, or farms.

B. Error Prediction Model for Institutional Errors

The error prediction model for institutional errors is shown in Exhibit IV-3. This exhibit shows that institutional error is in large part related to the financial aid received by the student. For example, students receiving Campus-Based aid are predicted to be nearly 19 percent more likely to have an institutional error than those who do not receive Campus-Based aid. This is to be expected because institutional error for Campus-Based need was much higher than either Stafford Loan overcertification error or Pell award error. The relative order of the effects of awards received in the model (Campus-Based higher than Stafford Loan, and Stafford Loan higher than Pell) is identical to the order of institutional error rates among the three programs.

Exhibit IV-3 also shows the following relationships with institutional error:

- Students attending proprietary institutions or attending institutions that do not recheck institutional records for the required documentation are more likely to have institutional error.
- Students attending four-year Baccalaureate or Graduate degree granting programs were only slightly less likely to have an institutional error than those attending other institutions.

EXHIBIT IV-3

Error Prediction Model for Institutional Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-2.3)

Institution Control
- Public or Private (0.0)
- Proprietary (8.0)

Institution Type
- 0-4 Year Program (2.9)
- 4 Year Baccalaureate and Graduate Programs (0.0)

Method used to re-check files for documentation
- Automated system (0.0)
- All manual systems (2.7)
- Do not re-check (8.6)

Indicator for Pell Award
- Student received Pell Grant (3.2)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (18.7)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (7.2)
- Student was not certified for a Stafford Loan (0.0)

V. EFFECT OF VERIFICATION

A. Integrated Verification Practices

Department of Education regulations for Integrated Verification require institutions to verify certain applicant-reported data for a sample of Title IV applicants. In addition, many institutions supplement their Integrated Verification activities with an Institutional Verification program.

Under Integrated Verification, the central processor, Multiple Data Entry processors, and certain Need Analysis Servicers use edits developed by ED to select Title IV applicants for verification. If more than 30 percent of an institution's Title IV applicants are selected for Integrated Verification, the institution may choose to verify only a subsample of those selected. (The subsample must include at least 30 percent of the institution's Title IV applicants.) We found that over 84 percent of all institutions verify all ED-selected applicants. Furthermore, because those institutions that do not verify all ED-selected applicants often do not have many more than 30 percent of their applicants selected, only 1.2 percent of the Pell recipients selected for Integrated Verification were not verified because of the 30 percent rule.

When an applicant is selected for Integrated Verification, the institution must collect documentation to verify the following items on the financial aid application:

- Adjusted gross income
- U.S. income taxes paid
- Untaxed income and benefits
- Household size
- Number in college

The Department's Verification Guide provides guidelines for acceptable documentation. The allowable documentation varies depending on the student's situation. IQCMP findings on documentation show that:

- Income-related items are most commonly documented by a copy of a tax return supplied by the applicant.
- Household size and number in college are most commonly documented by a signed statement.
- Documentation was often not found or not collected for income items that were reported as zero (e.g., no reported untaxed income) and for minimum values for household size and number in college (e.g., when an independent single student reports a household size and number in college of one).

B. Institutional Verification Practices

Nearly three-quarters of post-secondary institutions have an Institutional Verification program under which they verify more than the minimum required number of students and/or more than the minimum required data items on the financial aid application. Other findings from this analysis include:

- Nearly 43 percent of the institutions that verify additional students verify all applicants.
- One-third of the institutions said they verify applicants when conflicting data is submitted, and nearly 12 percent verify applicant data in error-prone circumstances.
- Most institutions (nearly 80 percent) reported they followed the procedures required under Integrated Verification when verifying student data.

C. Effect of Verification on Student Error

During visits to sampled institutions, our data collectors recorded the information initially submitted to the institution by each student and the information ultimately used by the institution to determine the student's financial aid award. Differences between these two sets of data are primarily due to verification, although in some instances differences are due to corrections initiated voluntarily by students. We used this data to compute the effect of Integrated and Institutional Verification on student error.

Exhibit V-1 summarizes the error attributable to two sources: (1) incorrect student data initially submitted to institutions, and (2) incorrect student data ultimately used by the institution to determine financial aid awards. The difference between these two error measures is primarily due to the effects of verification. Exhibit V-1 provides error measures for three groups of students: (1) students selected by the processor for verification, (2) students selected by the institution for verification, and (3) students who were not verified. Due to data constraints, Exhibit V-1 is based on only those students who received a Pell award. The exhibit does, however, evaluate the effects of

Exhibit V

EFFECT OF VERIFICATION ON STUDENT ERROR IN THE TITLE IV PROGRAMS

Award Year 1988-89

PELL RECIPIENTS ONLY[1]

ERROR MEASURE AND TYPE OF SELECTION	SAMPLE SIZE	PERCENT OF RECIPIENTS WITH ERROR			PERCENT OF DOLLARS IN ERROR		
		INITIAL ERROR[2]	FINAL ERROR[3]	CHANGE	INITIAL ERROR[2]	FINAL ERROR[3]	CHANGE
PELL ABSOLUTE ERROR							
PROCESSOR SELECTED	551	33.4	26.7	-6.7	12.7	9.4	-3.3
INSTITUTION SELECTED	260	30.9	20.7	-10.2	10.7	5.9	-4.8
NOT VERIFIED	858	25.8	24.0	-1.8	7.8	6.5	-1.3
CAMPUS BASED ABSOLUTE NEED ERROR							
PROCESSOR SELECTED	274	47.9	33.9	-14.0	5.0	2.7	-2.3
INSTITUTION SELECTED	144	47.8	39.8	-8.0	5.7	3.9	-1.8
NOT VERIFIED	492	39.7	36.1	-3.6	5.5	4.6	-0.9
STAFFORD LOAN OVERCERTIFICATION							
PROCESSOR SELECTED	359	14.8	10.3	-4.5	4.0	2.6	-1.4
INSTITUTION SELECTED	155	14.4	12.9	-1.5	3.6	4.1	0.5
NOT VERFIED	549	10.5	9.3	-1.2	3.8	3.4	-0.4
ARITHMETIC AVERAGE OF ABOVE							
PROCESSOR SELECTED	N/A	32.0	23.6	-8.4	7.2	4.9	-2.3
INSTITUTION SELECTED	N/A	31.0	24.5	-6.5	6.7	4.6	-2.1
NOT VERIFIED	N/A	25.3	23.1	-2.2	5.7	4.8	-0.9

1. Recipients who did not receive a Pell are excluded. Total sample 1,669 recipients.
2. Error in applicant's initial submission to the institution.
3. Error in final applicant data used by the institution to calculate award.

verification on Campus-Based and Stafford Loan awards to students who also received a Pell award. Significant findings from this table include the following:

- The error in Pell awards for students selected by the processor for verification (and verified by the institution) was reduced from an initial level of 33.4 percent of students to a final level of 26.7 percent, a reduction of 6.7 percent. In terms of award amount, the percent of dollars in error was reduced from 12.7 percent to 9.4 percent.

- Error in Pell awards selected for verification by the institution was reduced from 30.9 percent of the students to 20.7 percent of the students, and from 10.7 percent of the award dollars to 5.9 percent of the awards dollars.

The above analysis considers errors in all student data items, whether or not they are checked as a part of Integrated Verification. Errors in only those student items that are required to be verified under Integrated Verification are lower in magnitude, but generally similar, to those in Exhibit V-1.

D. Targeting of Verification

As shown previously in Exhibit V-1, the initial error among students selected by processors for Integrated Verification did not differ substantially from that of students not selected for verification. Regression models were used to predict whether or not an error occurred based on the applicant-reported data. Results indicate that the following two variables were significant predictors of error:

- Dependent students are nearly three times as likely as independent students to have an error in the data initially received by the institution. However, the processing edits select dependent students for Integrated Verification only slightly more frequently than independent students.

- **Applicants with high AGI ($35,000 parent income for dependents and $15,000 income for independents) are more than 6 times as likely to have an error in the information initially submitted to the institution than those with low AGI. The processing edits select dependent students with high AGI less frequently than those with low AGI. The edits select nearly one-quarter of the independent students with AGI less than $10,000 -- those with the least amount of error.**

These findings suggest that ED processing edits could be improved by targeting dependent students more frequently than independent students and targeting high AGI students and parents more frequently than low AGI students and parents. Because our database only includes Title IV recipients, while the selection system is applied to all applicants, it is not possible for us to fully evaluate the effectiveness of the selection system.

VI. SIMPLIFICATION OF THE FINANCIAL AID FORMULA

Simplification of the Title IV Student Financial Aid Delivery Systems has been under discussion for several years. Members of the financial aid community, including ED officials, financial aid officers, and members of Congress, all agree that simplification is a worthwhile goal. However, an agreement has yet to be reached on the specifics of simplification.

This chapter presents a summary of our analysis of a proposal by the National Association of Student Financial Aid Advisors' (NASFAA's) Need Analysis Standards Committee (NASC) to simplify the Title IV financial aid formulas. We have modeled the effect of the proposed changes to the Pell Grant Program because the effect of the changes could be easily traced to changes in Pell award amounts.

A. Revising the Definition of Dependency Status

In order to streamline the determination of dependency status, NASC developed an alternative definition of dependency status under which a recipient was considered independent if they met at least one of the following criteria:

- Were born before January 1, 1965 (for the 1988-89 award year)
- Were an orphan or ward of the court
- Had legal dependents other than a spouse
- Were a graduate or professional student

- Were a veteran of the U.S. Armed Forces

Any recipient not meeting at least one of these criteria is considered dependent under the alternative definition.

This alternative definition of dependency status has several desirable features. It is simpler than the current definition, requires fewer questions, and eliminates complicated branching. In addition, the alternative definition uses easily verified data items.

To estimate the effect of the alternative definition of dependency status, we determined the dependency status for each recipient using the alternative definition, and compared this dependency status to the dependency status determined using the current formula. A summary of the results of this comparison is shown in Exhibit VI-1. Significant findings from this analysis include:

- Nearly 96 percent of our sampled recipients had the same dependency status under the current and alternative definitions.
- Only 0.3 percent of recipients were dependent under the current formula and independent under the alternative formula. These students were all graduate students who were claimed as dependents by their parents for tax purposes.
- 3.9 percent of recipients were independent under the current formula and dependent under the alternative formula.

We analyzed the 4.2 percent of students who changed dependency status between the current and alternative definitions. One important group of students who changed

Exhibit VI-1

Effects on Dependency Status of Modifying the Dependency Status Definition

Current Formula	Alternate Formula	Median Percent of Students	Median Student Age	Student Income
Dep.	Dep.	49.6	20	$1,836
Dep.	Ind.	0.3	23	$4,124
Ind.	Dep.	3.9	22	$6,001
Ind.	Ind.	46.2	29	$8,536
All	All	100.0	22	$3,889

dependency status was the group of married students. Modifying the alternative definition to include all married students as independents would eliminate most of the dependency changes for married students and would reduce the overall number of dependency status changes from 4.2 percent to 3.2 percent.

B. Other Changes in Pell Grant Formulas

The alternative Pell Grant formula includes seven other changes:

- Eliminating medical and dental expenses from the formula.

- Eliminating elementary and secondary tuition from the formula.
- Eliminating the simplified formula.
- Eliminating work income from the formula.
- Making AFDC recipients automatically eligible for a full award.
- Eliminating assets from the formula for lower income families (i.e., families meeting both of the following conditions: (1) they filed a 1987 tax return on Form 1040A or Form 1040EZ, and (2) they had less than $25,000 in total income).
- Using a calculated value of U.S. taxes paid (using tax tables and reported filing status, number of exemptions, and adjusted gross income) rather than the reported figure.

To evaluate the effect of the alternative formula, we calculated Pell awards using the alternative formula and compared them to Pell awards calculated using the current formula[3]. When the alternative definition of dependency status and the above seven modifications to the award formula were implemented, 79.5 percent of the Pell Grant recipients in our data base had a change in their Pell Grant of $50 or less, and over 95 percent had a change of $250 or less. Exhibit VI-2 presents a table of changes by award amount category.

Other findings from this analysis include:

- More Pell Grant recipients had an increase in their award under the alternative formula than had a decrease in their award (13.3 percent had

[3] We could not calculate alternative awards for most of the recipients who switched from independent to dependent because we did not have the parent information necessary to calculate Pell award amounts. Also, recipients categorized as dislocated workers or displaced homemakers were excluded from our analysis because their award would be determined through professional judgment under the alternative formula.

Exhibit VI-2

Distribution of Pell Awards
Under Current and Alternative SAI Formulas
(Number of Sampled Recipients)

AWARD UNDER ALTERNATE FORMULA	AWARD UNDER CURRENT FORMULA					
	$500 OR LESS	$501 - $1,000	$1,001- $1,500	1,501- $2,000	OVER $2,000	ALL
$500 or Less	155	13	2	1	1	172
$501 - $1,000	15	245	10	1	1	272
$1,001 - $1,500	2	26	332	5	1	366
$1,501 - $2,000	0	1	13	273	10	297
Over $2,000	0	0	2	15	380	397
All	172	285	359	295	393	1,504

an increase in their award of at least $51 while 7.4 percent had a decrease in their Pell award of at least $51).

- Nearly 97 percent of recipients with awards over $2,000 under the current formula also had awards over $2,000 under the alternative formula. Thus, very few of the neediest recipients had a change in their award as a result of the alternative formula.

- Using a calculated rather than reported amount for U.S. taxes paid affected a higher percentage of Pell Grant recipients than any other single change modeled, 7 percent.

- The modifications involving AFDC recipients, low income recipients, and work income, caused less than 2 percent of recipients to have changes in

their Pell award of more than $50. In addition, for each change, a higher number of recipients had their awards increase than decrease.

- The modifications for medical/dental expenses and elementary and secondary tuition had similar effects on Pell Awards. These changes decreased awards for 2.6 percent (elementary and secondary tuition) and 3.2 percent (medical/dental expenses) of recipients.

VII. CORRECTIVE ACTIONS

A. Introduction

This section presents corrective actions for ED to consider in its efforts to reduce error in the Title IV student financial assistance programs. These recommendations are based on both the findings of the IQCMP and on recognized management practices used by other organizations within and outside of the Federal government.

1. Framework for Corrective Actions

Corrective actions with regard to the Title IV delivery system should be aimed towards increasing the quality of services provided by ED. There are three distinct groups served by ED: students who are potential recipients of Title IV aid (and their families), educational institutions that participate in the program, and taxpayers who pay for the program. Each of these three groups has specific goals that must be met by ED. ED can increase service to students and institutions by increasing the amount of services available, decreasing turn-around time, providing clearer and more in-depth information, and reducing the burden involved in the financial aid system. At the same time, ED needs to ensure that taxpayer money is being spent correctly (i.e., with a minimum of errors), equitably, and in a cost-effective manner.

Because of the complex nature of the student aid delivery system, errors in awarding student financial assistance will never be entirely eliminated. Some reduction in error

rates could be achieved by implementing minor modifications to the delivery system (e.g., improving instructions, redesigning forms, etc), but many of these "quick fixes" have been tried in the past with limited success. ED may need to consider more sweeping changes in the financial aid delivery system, such as simplification of the financial aid formula, in order to achieve major reductions in error rates.

2. Understanding the Causes of Error

Both students and institutions have motives to maximize the student's Federal aid awards. Students have the obvious motivation of reducing the financial burden of the costs of postsecondary education. Institutions also benefit from Federal student aid, either through reduced demands on institutionally funded financial aid or through increased enrollment by financially needy students. These pressures to increase Federal aid awards may lead to intentional errors.

Not all of the error in the Title IV programs can be attributed to intentional errors. Most students and institutions are honest and intend to supply complete and accurate information, but mistakes are still made. Unintentional mistakes can affect awards either in a random fashion (e.g., an unintentional error in home value could increase or decrease the award) or in one direction (e.g., forgetting to report untaxed income will increase the award). Overall, unintentional mistakes probably tend to increase the student award.

Although ED has uncovered several cases of fraud in recent years, it is nearly impossible for a study such as IQCMP to differentiate between the effects of intentional and unintentional errors. We uncovered only one case that was clearly an example of fraud, that of a student's submission of a falsified application for financial aid. For this reason, the corrective actions presented in this report are designed to reduce both intentional and unintentional error.

B. Proposed Corrective Actions

Five different strategies for reducing error in the student assistance programs are discussed below. These five strategies are intended to cover both intentional and unintentional errors committed by students and institutions. The five strategies include:

- Improve communications with students and institutions.
- Remove opportunities for error.
- Provide disincentives for noncompliance.
- Identify and correct errors after occurrence.
- Enlist educational institutions in efforts to reduce error.

These corrective action strategies, and proposed corrective actions, are discussed below.

1. Improve Communications With Students and Institutions

This corrective action strategy includes clarifying instructions, providing more information on policies and procedures, and correcting incorrect perceptions. This

corrective action strategy is relatively easy and low-cost to implement. However, because of their nature, it is likely that the changes proposed under this strategy will have only small effects on error in awarding aid.

Three specific corrective actions that fall within the overall strategy of improving communications with students and institutions include:

- Clarify Definitions of Student Reported Items -- During IQCMP, several definitions on the financial aid application were found to be ambiguous. In particular the definitions for displaced homemaker and household size should be clarified.

- Clarify Procedures For Reporting Changes in Student Situation -- The necessity for reporting changes in a student's financial situation is not spelled out clearly on the financial aid application. Student's should be clearly told under what circumstances they must report changes to the financial aid administrator.

- Clarify Regulations Regarding the Student Assistance Programs -- During IQCMP, two areas were uncovered in which ED has given the institutions either unclear or erroneous instructions about the policies involving the Title IV programs. These two areas involved Stafford Loan undercertifications and the worksheets used by the institutions to calculate family contributions. These two areas should be straightened out and specific instructions given to the institutions.

2. Remove Opportunities for Error

This corrective action strategy is aimed at reducing errors before they have an opportunity to occur. The corrective actions suggested as part of this strategy require more substantive changes in the delivery system than do the other strategies. Because this strategy should eliminate opportunities for error, the error rates should decrease.

Three specific corrective actions that are designed to reduce opportunities for error are as follows:

- Simplification of the Financial Aid Formula – This corrective action, which has been discussed for several years in various forms, will involve a major investment in an overhaul of the financial aid delivery system. Chapter VI of this report discusses a simplified student aid formula proposed by NASFAA.

- Revise Reporting Procedures for Pell Cost of Attendance -- During the processing of IQCMP data, several cases were found to be in error because the institution failed to apply the regulatory limits to the components of cost of attendance in the Pell program. Requiring schools to report each item within the cost of attendance separately or eliminating the ceilings placed on the components of Pell cost of attendance would remove the opportunity to make this type of error.

- Do Not Disburse Awards Based on Estimated Tax Data -- Estimated tax data are error prone and difficult to verify. Although a student may need to file a financial aid application before a tax return is complete, the student usually will not receive disbursed funds until after a tax form is filed. We recommend that funds not be disbursed until after a student updates estimated tax data.

3. Provide Disincentives for Noncompliance

This corrective action strategy involves creating the perception that data will be checked and that the potential for stiff penalties more than offsets the benefits of error. To be fully successful, this strategy requires a delivery system that holds both students and institutions accountable for error and that uses only data elements that can be verified.

This strategy is primarily aimed at reducing intentional errors. Applicants who deliberately report incorrect information will not be as likely to do so if they perceive

that they will be caught and punished. A secondary benefit of the strategy is potential reduction in unintentional errors because people will be more careful in completing the application if they know they will be penalized for an error.

Specific corrective actions that implement the strategy of providing disincentives for noncompliance are as follows:

- Require Specific Information on Household Size and Number in College -- The IRS has found that requiring taxpayers to complete a table documenting dependents (e.g., name, social security number, etc.) improved compliance with the tax laws. ED should consider using a table on the application to solicit information on household size and number in college (e.g., name, age, relationship, etc.). This table could also be used to track information during the verification process.

- Require Specific Information on Home Value and Debt -- In an approach similar to that recommended for household size and number in college, ED should collect specific information on home value and debt including current home value, current home debt, ZIP Code of home, original purchase price of home, and year of purchase.

- Apply Penalties More Frequently to Cases With Error -- ED should begin using fines more often for student applications with incorrect data. Applying small penalties to cases with intentional error will reduce future error by increasing the perceived likelihood of being caught. Although students probably do not view the postsecondary institution as an enforcement entity, and although enforcement is not a primary mission of ED, the perception of a significant ED enforcement presence is necessary to promote voluntary compliance by students.

4. Identify and Correct Errors After Occurrence

This corrective action strategy involves verifying data that has already been collected and ensuring that ED procedures are being followed by the institutions. The corrective

actions in this strategy are relatively higher in cost since they involve personnel to check and correct past actions, instead of eliminating errors before they occur. However, it is important that ED maintain an oversight presence for institutions and students.

The Department of Education has already implemented corrective actions using this strategy. Integrated Verification focuses on identifying student errors, and an institutional auditing and review policy focuses on uncovering institutional errors. However, as discussed in Chapter V on verification, it appears that targeting students for verification could be significantly improved. A full review of verification procedures was beyond the scope of IQCMP.

5. Enlist Educational Institutions in Efforts to Reduce Error

Many institutions already have a strong commitment to reducing error in the Title IV programs. Most institutions (over 84 percent) verify all ED-selected applicants, and almost 73 percent of institutions have institutional verification policies (i.e., students are verified who were not selected by ED). Nearly 43 percent of the institutions performing institutional verification say that they verify all students. This commitment to quality control should be encouraged by ED.

Quality control is implemented in the Title IV delivery system by assessing penalties for errors that are made by the institutions. There are few incentives in place to encourage institutions to improve the quality of financial aid delivery beyond a level that is needed

to avoid penalties. Under the current regulations, all schools are treated equally, regardless of their past performance as measured by error rates. Institutions that understand and apply quality control principles, and thus achieve lower error rates, may be spending too much time fulfilling regulations; some of this time might be better spent in implementing error reduction procedures geared toward their own institution. In order for a program such as this to be a success, monitoring the error rates for these institutions would be needed to ensure that quality control practices are not slipping.

One promising program that involves institutions in efforts to reduce error is the Institutional Quality Control Pilot Project. This project is still a relatively new project. It has been successful in recruiting institutions to participate, but reduction in error rates have not been as large as desired. The Pilot project represents a promising quality control program focusing on management practices and should be refined and continued.

Institutions that are not approved for, or that choose not to participate in, the Pilot project should also receive ED guidance in using quality control procedures to improve financial aid management. ED, through its training and dissemination offices, could provide a series of brochures or booklets on quality control procedures that institutions, especially those in the Pilot project, have successfully implemented. In addition, ED should continue to encourage institutions to develop quality control procedures and adopt procedures found to reduce error at other institutions. ED could promote commitment to quality control through its "Dear Colleague" letter and encourage schools

to network with each other through NASFAA and other professional organizations.

C. Conclusions

The five corrective action strategies discussed above range in scope from minor to wholesale changes of the delivery system. Exhibit VII-1 presents a summary of the extent of modifications to the delivery system required to implement each corrective action strategy. The corrective actions suggested under each of these strategies can be implemented in any combination that is deemed appropriate to meet the Department's goals.

Despite the decrease in error rates found during IQCMP, error in the Title IV system is still significant. ED should review its goals for quality control, as well as the corrective actions discussed above, and develop a plan for reducing error rates consistent with its goals for providing quality service.

EXHIBIT VII-1

EXTENT OF MODIFICATIONS TO THE TITLE IV DELIVERY SYSTEM REQUIRED BY CORRECTIVE ACTION STRATEGIES

Corrective Action Strategy	Extent of Modifications	
	Minor	Major
Improve Communications With Students and Institutions	X	
Remove Opportunities for Error	X	X
Provide Disincentives for Noncompliance	X	
Identify and Correct Errors After Occurrence	X	
Enlist Educational Institutions in Efforts to Reduce Error		X

I. INTRODUCTION AND BACKGROUND

A. The Integrated Quality Control Measurement Project

1. Background and Objectives

The purpose of the Integrated Quality Control Measurement Project (IQCMP) is to evaluate the quality of the delivery of Title IV student financial assistance to students attending postsecondary institutions during the 1988-89 academic year. The Title IV programs evaluated in the study include:

- The Pell Grant Program
- The Campus-Based Programs (Supplemental Educational Opportunity Grant, College Work-Study, and Perkins Loan), and
- The Stafford Loan Program (formerly the Guaranteed Student Loan Program)

IQCMP is the most recent in a series of quality control studies conducted by the U.S. Department of Education (ED) to determine the quality of the delivery of Title IV funds. The study was sponsored by the Statistical Analysis Branch of the Division of Quality Assurance in the Debt Collection and Management Assistance Service of the Office of Postsecondary Education, U.S. Department of Education. The study was conducted by Price Waterhouse in affiliation with The Gallup Organization and Pelavin Associates, Inc.

This report presents findings on error in the delivery of Title IV student financial aid and proposes corrective actions aimed at reducing error in future years. Other project reports including the IQCMP Error Definitions and IQC Pilot Analysis present in-depth discussions of the error definitions and an analysis of the Institutional Quality Control Pilot Project, respectively.

2. IQCMP Methodology

The IQCMP relied on a nationwide sample of students to make inferences at the national level about the quality of the award process for the various Title IV financial aid programs. The sample was designed to be large enough to make statistical inferences about the percent of awards in error for each Title IV program with +/- 5 percent accuracy at a 90 percent confidence level. The sample data cannot be used to make reliable estimates of error at any particular postsecondary institution.

A random sample of 300 public, private, and proprietary institutions was selected from among all institutions in the continental U.S. participating in the Title IV student financial aid programs. These institutions, plus the 50 institutions participating in the Institutional Quality Control Pilot Project, formed the basis for the study sample.

Data collection began with visits to the sampled institutions. First, financial aid administrators were interviewed to understand each institution's financial aid policies and

procedures. Next, a random sample of students participating in the Title IV programs at each institution was selected. A total of 3,310 students were selected at the 350 institutions visited. Finally, information from the school's financial aid records was abstracted for each of the sampled students. Inconsistencies in the institution's financial aid records were discussed with the financial aid administrator to obtain an explanation or to confirm an error.

After the institutional data collection, interviews were conducted with sampled students and their parents. During these interviews, students and parents were requested to show documents verifying the data reported on the student's financial aid application. Additional information from sources such as the IRS, financial institutions, and property tax assessors was also collected to confirm or refute data reported on the student's financial aid application.

Information from all sources was combined into a comprehensive database. During this step, cases that were missing a student interview or a dependent student's parent interview were dropped from the analysis. Our final analysis database contained 2,653 students. This database was used to calculate "best" award values (based on the most reliable information collected from among the various sources) and to make projections of differences between best awards and actual awards received.

The results presented in this report are based on abstracts of 2,653 student records, 2,653 student interviews, 1,594 parent interviews, 2,440 tax forms, 127 financial institution records, and 500 property tax assessor records.

B. Background on the Title IV Financial Aid Delivery System

1. The Title IV Programs

The Department of Education is responsible for administering Federal financial aid to students enrolled in postsecondary educational institutions. The majority of these programs are authorized under Title IV of the Higher Education Act (HEA) of 1965 (20 USC 1070a, b, 1071, 1087a, and 2751; and 42 USC 2751) and its amendments. The most recent amendments are the Higher Education Amendments of 1986 (P.L. 99-498) and the Higher Education Technical Amendments act of 1987 (P.L. 100-50).

There are five major Federal student financial aid programs that are commonly referred to as the Title IV programs. These five programs, examined during IQCMP, are:

- The Pell Grant Program -- The Pell Grant (formerly Basic Education Opportunity Grant) Program is a Federally-funded formula grant program. A student's Pell Grant award is determined based on a legislated formula and is not dependent on the amount of money available at the institution. Only undergraduate students attending participating institutions at least half time are eligible.
- The Supplemental Education Opportunity Grants (SEOG) Program -- SEOG is a Federally-funded grant program targeted to students who show exceptional need,

with preference given to students who also receive Pell Grants. SEOG grants are determined and awarded by the institution. The amount of an SEOG is determined, in part, on the amount of money available at the institution. Only undergraduate students attending participating institutions are eligible.

- The College Work-Study (CWS) Program -- CWS is a program to distribute money to eligible students, both undergraduate and graduate, in exchange for part-time work. CWS programs are implemented by the institution, and student awards are determined based on the amount of money available at the institution. In most cases, the Federal government supplies 80 percent of CWS funds.

- The Perkins Loan Program -- Perkins Loans (formerly National Direct Student Loans) are low-interest, long-term loans distributed to both undergraduate and graduate students. Perkins Loans are made by the institutions, and award amounts are determined based on the amount of money available at the institution. Institutions supply $1 for every $9 the Federal government supplies to the Perkins Loan funds.

- The Stafford Loan Program -- Stafford Loans (formerly Guaranteed Student Loans) are low interest, long-term loans made by lenders and subsidized and guaranteed by the Federal government. Both undergraduate and graduate students who are enrolled in eligible programs at least half time may receive Stafford Loans.

Together, the Supplemental Education Opportunity Grant, College Work-Study, and Perkins Loans programs are grouped as Campus-Based Programs. Although these programs are largely financed by the Federal Government, institutions may establish their own policies for distributing the limited funding among eligible applicants.

The Title IV programs distributed over $15.6 billion in financial aid to over 5.5 million students during the 1988-89 award year. Exhibit I-1 presents a breakdown of dollars and awards by program. Over 8,000 postsecondary institutions and more than 10,000 lending institutions and guarantee agencies participate in the delivery system.

Exhibit I-1

TITLE IV AID AVAILABLE TO STUDENTS

Award Year 1988-89

Program	Aid Available (in Millions of Dollars)	Number of Awards	Average Award (in Dollars)
Pell Grants	4,863	3,302,000	1,473
Campus-Based			
Work Study	780	835,000	934
SEOG	442	633,000	698
Perkins Loan	884	826,000	1,070
Total Campus Based	2,106	2,294,000	918
Stafford Loans	8,431	3,234,000	2,607
Total	15,400	8,830,000	1,744

Data from 1991 budget request provided by the Department of Education

2. Roles of Participants in Current Financial Aid Delivery System

The Title IV Federal financial aid delivery system has four major participant groups:

- The Department of Education (ED),
- Students applying for Title IV financial aid,
- The Title IV processors, and
- Financial Aid Administrators

We summarize the roles of each participant group below.

a. The Department of Education

The Office of Postsecondary Education within the Department of Education has the responsibility of administering the Title IV financial aid programs. ED develops and analyzes financial aid policies, programs, and regulations, develops policy manuals and application forms, and develops budgets and analyzes the impact and cost of initiatives.

ED is also responsible for contracting with need analysis servicers (organizations that calculate student need and provide institutions with other financial aid services) to become Multiple Data Entry (MDE) processors. MDE's may be used in place of the

Federal Application Processing Center to calculate the student's (and his or her family's) expected contribution to education, as expressed by either the Student Aid Index (SAI) for the Pell Grant Program or the Family Contribution (FC) for the Campus-Based and Stafford Loan Programs.

b. Students

The student is responsible for completing the application for Federal student aid completely and accurately. If the student is financially dependent on his or her parents, he or she must also provide information on the parents' financial status. The student must provide documentation for selected data items, if requested.

To be eligible for Title IV student financial aid, a student must be:

- A U.S. citizen or eligible non-citizen,
- Registered with Selective Service if required,
- Enrolled in an eligible institution and program,
- Making satisfactory academic progress,
- Not in default on a loan or owe a refund on any grant from a Title IV program, and
- Financially needy, as determined by predefined standards.

c. Federal Aid Processors

The Federal Processing System is composed of the Federal Application Processing Center in Iowa City, Iowa, and several MDE processors and need analysis servicers. Information supplied by the student on either the Federal application or an application specific to an MDE is used by the processor (i.e., the Federal Processor, an MDE, or some other need analysis servicer certified by the Department of Education) to calculate the SAI and FC using the Pell Grant Formula and the Congressional Methodology, respectively. If the student requested a Pell Grant, the processor transmits the student's original application information to the Federal processor. The Federal processor sends a Student Aid Report (SAR), containing the financial information supplied on the application, to the student. The student is then responsible for reviewing the information on the SAR and supplying updated information when necessary. The Federal processor and other certified processors are responsible for selecting students for Integrated Verification, the process of verifying certain items from the student's aid application.

d. Financial Aid Administrators

The financial aid administrator (FAA) is responsible for overseeing the administration of the Title IV student aid programs at the educational institution. The FAA determines the student's eligibility for Title IV aid, calculates the student's need, and determines the amount of financial aid the student will receive from various sources following ED and

institutional guidelines. In addition, the FAA is responsible for verifying the information supplied by students selected by the processor for verification and for ensuring that the proper amount of money is repaid or refunded to the appropriate program if a student is no longer eligible.

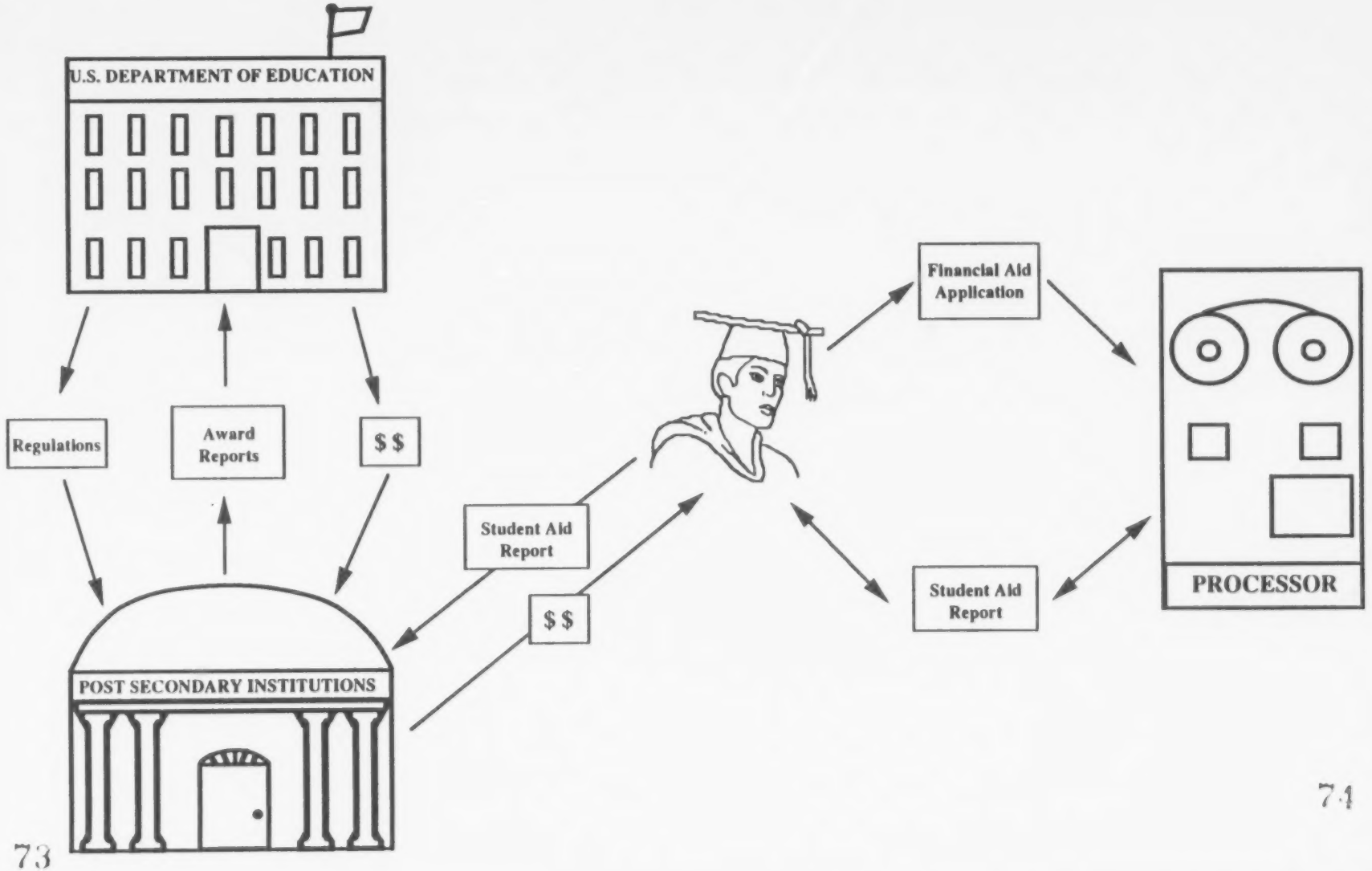
FAA's also have the authority to override or adjust information used in calculating the student's aid, including the FC and the cost of attendance. During the 1987-88 award year, FAA's were given the power to override the student's dependency status from dependent to independent if the reason for the override was documented. In addition, for the 1988-89 award year FAA's were given the authority to adjust the SAI for students with special circumstances. This authority was withdrawn for the 1989-90 award year.

3. Flow of Data Through the Title IV Delivery System

The Title IV delivery system is structured to meet the diverse needs of students attending postsecondary institutions. The four basic components of the system, described above, can interact in various ways. Exhibit I-2 presents a simplified view of the data flow in the Title IV system.

To be eligible to receive Title IV financial assistance, a student must demonstrate financial need. Financial need is the difference between the program's cost of

THE TITLE IV FINANCIAL AID DELIVERY SYSTEM



attendance and the ability of the student (and his or her family) to meet those costs.

As the first step in showing financial need, the student and his or her family complete an application for financial assistance. This application can be either the Federal application, or an application used by one of the MDE processors. On the application, the student answers questions about his or her dependency status (i.e., does the student rely on parental support), income, assets, and expenses. This application is then sent to either the Federal processor, an MDE processor, or a needs analysis servicer certified by the Department of Education. Because different institutions contract with different processors, a student who is applying to more than one school may fill out several different applications, all asking for essentially the same information.

The processor enters the information contained on the student's application into a data processing system. The system checks the student data for internal consistency and completeness. An application that does not pass this editing process is rejected and returned to the student. The student makes any necessary corrections and returns the updated application to the processor. This procedure continues until the student data passes the editing process.

A key element in determining financial need is the financial contribution expected from the student and family, called the Student Aid Index (SAI) for the Pell Grant program

and the family contribution (FC) for the Campus-Based and Stafford Loan programs. This contribution is calculated by the processor from the student application using formulas set by Congress. The processor also uses an automated system to select students for Integrated Verification. Students are selected for verification using criteria set by ED.

The financial aid administrator at the institution uses the student's SAI or FC in combination with the institution's information on cost of attendance, other aid awarded to the student, and institutional policies to derive a package of financial aid for the student. The FAA may use professional judgment to change one or more of the items that is used in calculating financial aid.

The FAA must also ensure that the student meets the eligibility criteria for financial aid and that all of the student's documentation is in order before money is disbursed to the student. This step includes checking that necessary Financial Aid Transcripts (FAT), statements of Selective Service registration, Statements of Educational Purposes, etc., are on file. Additionally, the FAA must verify selected data items for those students selected for Integrated Verification. After the educational institution disburses aid to the student, it reports the disbursement to ED and is reimbursed for the Federal portion of the award.

As may be seen from the above discussion of the Title IV delivery system, the student data used in calculating the financial aid award is checked at several different points. Much of the error that could occur in awarding financial aid is removed during the award process. Some of the error is also removed during verification. The error that has been examined during IQCMP is the error that remains in the award after it has been processed by the delivery system. IQCMP measurement of this error is described below.

C. Error in IQCMP

1. IQCMP Error Measurement Philosophy

The objective of IQCMP is to measure the quality of the financial aid delivery system and to identify steps that can be taken to improve quality. The term "error" as defined in IQCMP therefore refers to a deficiency in quality, which is a much broader definition of error than that included in the Title IV regulations.

In general terms, error is defined to be the extent to which the delivery of Title IV aid differs from that intended under the Title IV regulations. This definition includes the following types of error:

- Institutional Liability Error -- A limited group of errors defined in the Title IV regulations. Institutions who commit liability errors must reimburse the Federal government for the amount of the error.

- Institutional failure to follow the Title IV regulations -- A failure on the part of the institution to follow the Title IV regulations, when that failure is not a liability error. These errors include incorrect calculation of the financial aid award and failures to follow regulatory procedures.

- Institutional failure to follow its own award policies -- A failure by the institution to follow its own policies for Title IV aid, even when that failure does not violate the Title IV regulations.

- Intentional student reporting errors -- An intentional failure by the student to report the correct data on his or her financial aid application. Under the Title IV regulations, students are held accountable for these errors and may be subject to fines and/or imprisonment.

- Unintentional student reporting errors -- An unintentional failure by the student to report the correct data on his or her financial application. Under the Title IV regulations, students aid awards should be adjusted if unintentional errors are come to the attention of the institution during verification of the student aid application. However, the student is not subject to fines or imprisonment.

- Errors in estimates and projections -- The award calculation relies in part on estimates (e.g., estimates of the value of a student's home or real estate investments) and projections (e.g., the expected household size or expected outside financial assistance for the upcoming academic year). Incorrect estimates and projections, if made in good faith, do not represent errors under the Title IV regulations. However, IQCMP includes incorrect estimates and projections as errors in order to evaluate the extent to which financial aid awards are consistent with the intent of the Title IV program.

The following examples help illustrate how "error" measured during IQCMP differs from error under the Title IV regulations.

Example 1

In order to distribute limited Campus-Based funds to as many students as possible, the University of Anytown has established a policy that Campus-Based awards cannot exceed $1,500. Jane Student has a Campus-Based need of $4,000 and receives a Campus-Based award of $2,000. For the purposes of this study, we compute an error in Jane's Campus-Based award of $500 because the $2,000 award exceeds the institution's policy of a maximum $1,500 award. From a regulatory standpoint, no error has occurred because the Title IV regulations do not limit Campus-Based awards to $1,500.

Example 2

John Smith, a sophomore, applies for financial aid as a dependent student. Because John's parents expect his younger sister Jackie to start college in the fall, they report that the number in college for his parent's household is two. Raising the number of Smith dependents in college to two makes John eligible for a $750 Stafford Loan. Two weeks before classes start, Jackie decides to defer her enrollment. For the purposes of this study, we compute an overaward error of $750 for John's Stafford Loan. No error has occurred from a regulatory standpoint.

Example 3

Joe Student is attending the College of State Undergraduates as a sophomore. Over the previous summer, Joe turned 18 and registered with Selective Service. For his sophomore year Joe applied for Title IV aid and received a $1,500 Pell Grant and a $1,800 Stafford Loan. Although the amount of aid awarded to Joe was correct, he failed to sign the required Statement of Registration Status to document that he had indeed registered with Selective Service. For this study we would determine that a $1,500 error in the Pell award was made and an $1,800 error in the Stafford Loan award because the institution failed to collect the signed Statement of Registration Status required by the Title IV regulations. However, under the Title IV regulations, the institution is not liable for the error because the student did in fact register with Selective Service.

2. Methodology Used to Calculate Errors

Error is calculated as the difference between the actual award or need and the "best value" award or need computed using data collected from students, parents, institutions, and external sources. As the first step in this process, the sources of data available for each item are ranked from most to least reliable. The best value for a data item is the value associated with the source of highest reliability.

The table on the following page presents an example of the priorities assigned to sources

of parent's adjusted gross income (AGI) data and the frequency with which each source was used.

Example of Best Value Selection of Parent's AGI

	Priority Source	Type of Documentation	Frequency used as Best Value
1	IRS	Copy of Tax Return	60.0%
2	Parent Interview	Certified Tax Return	1.3%
3	Financial Aid Records	Certified Tax Return	0.0%
4	Parent Interview	Copy of Tax Return	21.0%
5	Financial Aid Records	Copy of Tax Return	3.5%
6	Parent Interview	Hand Written Tax Return	0.0%
7	Financial Aid Records	Signed Statement	0.0%
8	Student Aid Report	Undocumented	4.1%
9	Financial Aid Records	Undocumented	1.8%
			100.0%

The best SAI or FC is calculated using the best values for all student data items (e.g., adjusted gross income, household size, etc.). This best SAI or FC is then combined with best institutional data items, collected from the institution site visits (e.g., cost of attendance, other aid awarded, etc.), to calculate a best award. The best award is compared to the actual amount awarded to the student. Any difference of more than $50 between the best and actual awards is considered to be an overall error.

Institutional and student error are calculated in a similar fashion. Institutional error considers only errors committed by the institution. The best institutional award is calculated using a combination of best institutional data items and student data items as reported on the financial aid application or the SAR. This best institutional award is compared to the actual award to determine institutional error. Similarly, the best student award is calculated using a combination of actual institutional data values and best student data as collected during IQCMP. Differences between the best student award and the actual award are labeled student error.

3. Definition of Error Measures

Seven measures of error are used to describe the quality of the Title IV programs:

- Composite Error -- error in the total amount of financial support provided to the student by the five Title IV programs. The amount of financial support is the sum of the Pell Grant award, Campus-Based amount distributed, and Stafford Loan amount.
- Pell Payment Error -- error in payments from the Pell program, both under and over.
- Campus-Based Need Error -- error in the calculated student need (the difference between the cost of attendance and the sum of the expected family contribution and other known financial aid).
- Campus-Based Distributional Error -- an estimate of the payment consequences of all need errors (taking into account institutional policies that may limit the extent to which the award fully meets student need).

- Campus-Based Award in Excess of Need -- the extent to which the actual Campus-Based award received exceeds the best student need.

- Stafford Loan Overcertification Error -- the extent to which the calculated Stafford Loan certification amount (the maximum loan amount available to the student) exceeds the best certification amount.

- Stafford Loan Overaward Error -- the extent to which the actual Stafford Loan received exceeds the best certification amount.

Exhibit I-3 illustrates the calculation of these seven error measures.

We compute a **Pell Grant award error** of $100 ($,1000 - $900 = $100) because the actual award disbursed exceeds the best award by $100. Similarly, we will compute a **Campus-Based need error** of $500 ($2,000 - $1,500 = $500) and a **Campus-Based disbursement error** of $400 ($1,600 - $1,200 = $400) respectively. Campus-Based award in excess of need is the extent to which actual Campus-Based award ($1,600) exceeds the best Campus-Based need ($1,500). In this case we compute a **Campus-Based award in excess of need error** of $100 ($1,600 - $1,500 = $100). When the actual Campus-Based award is less than the best Campus-Based need, award in excess of need is set to $0. In Exhibit I-3, the actual Stafford Loan certification ($2,000) exceeds the best certification ($1,000) by $1,000. Therefore, we calculate a **Stafford Loan overcertification error** of $1,000 ($2,000 - $1,000 = $1,000).

Exhibit I-3

Example to Demonstrate IQCMP Error

A. Hypothetical Actual and Best Values

	Actual	Best
Pell Grant award	$1,000	$900
Campus-Based need	$2,000	$1,500
Campus-Based award	$1,600	$1,200
Stafford Loan certification	$2,000	$1,000
Stafford Loan	$1,000	$1,000

B. Error Computations

	Dollar Error
Pell Grant award error	$100
Campus-Based need error	$500
Campus-Based disbursement error	$400
Campus-Based award in excess of need	$100
Stafford Loan overcertification error	$1,000
Stafford Loan overaward error	$0
Composite Error	$500

Composite error represents the total amount of financial support in error, and is the sum of Pell Grant award error, Campus-Based disbursement error, and Stafford Loan overaward error.

While IQCMP measures overcertification error, it does not measure undercertification error. The Stafford Loan certification calculated according to Title IV regulations represents the maximum loan amount that the student can receive. However, students sometimes elect to take a Stafford Loan that is less this maximum certification amount. We found that when this occurs, institutions usually certified the student for the requested loan amount rather than the maximum certification amount. As a result, when the actual Stafford Loan certification was less than the maximum certification amount computed during IQCMP, we could not determine whether the institution had made an error or the student requested a loan that was less than the full certification.

The computation of **Stafford Loan overaward** was also affected by the fact that students sometimes requested a loan that was less than the maximum certification. When the best certification computed during IQCMP was less than the actual certification, it was necessary to estimate the loan amount that the student would have elected to receive under the smaller certification. We assumed that the student would request a loan for the full amount of the best certification. When the best certification computed during IQCMP was greater than the actual certification, we assumed the student would request a loan up to the amount of the actual loan requested. Exhibit I-3 illustrates a case where the actual certification ($2,000) exceeds the best certification ($1,000). Suppose we switch the best and actual certifications, so that the best certification exceeds the actual by $1,000. In this case, we assume the student would request the same amount

under both certifications ($1,000) and calculate no Stafford overaward error ($1,000 - $1,000 = $0).

Finally, IQCMP will compute a **Composite error** of $500 for the student in the example above. Composite error represents the total amount of financial support in error for the five Title IV Programs. In the example above, Composite error is composed of:

Pell Grant award error	$100
Campus-Based disbursement error	$400
Stafford Loan overaward error	$ 0
Composite error	$500

Each of these seven types of error listed above is measured using two different error sources:

- Student Error -- error resulting from inaccurate data reported by the student recipient. Best student awards are calculated using best student values and reported institutional values.
- Institutional Error -- error resulting from inaccurate processing by the institutions or from improperly applying institution packaging guidelines. Best institutional awards are calculated using reported student values and best institution values.
- Overall Error -- error resulting from either student or institutional error as defined above.

It should be noted that student error and institutional error do not necessarily sum to the overall error, because errors made by students and institutions do not necessarily have an additive effect on the overall award. Some errors cancel each other, some errors occur in groups, and some errors may have a multiplier effect (i.e., one item in error may, by definition, lead to another item being in error). All errors presented in this report are calculated with a $50 tolerance; that is, a best award within plus or minus $50 of the actual award is treated as zero error.

Composite Error, Pell Grant Payment Error, Campus-Based Need Error, and Campus-Based Distributional Error are all reported in the following three ways:

- Overaward (Overstatement) Error -- the extent to which the actual award (need) exceeds the award (need) computed using best values.
- Underaward (Understatement) Error -- the extent to which the actual award (need) is less than the award (need) computed using best values.
- Absolute Error -- the sum of overawards and underawards (where both overawards and underawards are considered to be positive).

Only overawards are reported for Campus-Based Award in Excess of Need Error, Stafford Loan Certification Error, and Stafford Loan Award Error.

D. Report Organization

The remainder of this report details our findings on error and the corrective actions that we propose. This information is contained in the following chapters:

II. Overall Error in the Title IV Financial Aid Programs

III. Sources of Error in the Title IV Financial Aid Program

IV. Error Profile Analysis

V. Verification Analysis

VI. Simplification of the Financial Aid Formula

VII. Corrective Actions

II. ERROR IN THE TITLE IV FINANCIAL AID PROGRAMS

A. Composite Error in the Title IV Student Financial Assistance Programs

Composite error is defined as the actual total award disbursed minus the best total award computed using the best values. The actual total award is considered to be the sum of the Pell award, Campus-Based amount distributed, and the Stafford Loan amount. Together, the Pell, Campus-Based, and Stafford Loan programs distributed approximately $15.4 billion in student financial aid during the 1988-89 academic year. Exhibit I-1 (Chapter 1) presented a table of Title IV aid available and the number of students receiving awards for each program.

The results of the composite error analysis are shown in Exhibit II-1. Note that error in this context does not necessarily mean that institutions and students behaved as they should not have under applicable regulations. However, many documented data variances do have a significant dollar impact and are important quality indicators. Findings of the composite error analysis include the following:

- Overall absolute error for the three programs was $1.7 billion, or approximately 10.9 percent of program dollars. About 36.3 percent of students receiving Title IV aid had errors over $50. The average absolute error per student with error was $918.
- Absolute student error was higher than absolute institutional error (6.6 percent of dollars and 5.1 percent of dollars, respectively).
- Mean error per recipient with error was higher for institutional error than for student error ($1,125 for institutions versus $742 for students).
- Overaward errors were significantly higher than underawards for both student and institutional errors.

Exhibit II-1

COMPOSITE TITLE IV AWARD ERROR[1]

Award Year 1988-89

Error Measure	Composite Title IV Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
OVERALL				
Absolute	36.6(±2.5)	10.9(±1.0)	1,679	918
Overaward	29.4(±2.3)	9.8(±1.0)	1,509	1,025
Underaward	7.2(±1.5)	1.1(±0.3)	169	480
STUDENT				
Absolute	27.6(±2.4)	6.6(±0.8)	1,016	742
Overaward	21.0(±2.1)	5.7(±0.7)	878	836
Underaward	6.6(±1.5)	0.9(±0.2)	139	440
INSTITUTIONAL				
Absolute	13.9(±1.5)	5.1(±0.8)	785	1,125
Overaward	12.4(±1.4)	4.8(±0.8)	739	1,189
Underaward	1.5(±0.4)	0.3(±0.1)	46	610

1. Composite Title IV award error includes errors in amount awarded to students for the Pell Grant, Campus Based, and Stafford Loan programs. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 6.0 million students awarded Title IV financial aid during the 1988-89 award year.
3. Based on $15.4 billion available to students during the 1988-89 award year.

Although error rates estimated during IQCMP are lower than were error rates estimated during previous quality control studies, there is still a significant amount of error in the programs. Almost 11 percent of the Title IV program dollars are awarded in error.

B. Error in the Pell Grant Program

1. Pell Grant Errors

Error in the Pell Grant Program is defined as the actual Pell award minus the best Pell award. For 1988-89 the Pell program distributed $4.9 billion in financial assistance to over 3.3 million undergraduate students enrolled in postsecondary institutions. Approximately 9.9 percent ($481 million) was awarded in error, and about 28.2 percent of students receiving Pell grants had errors of over $50 in their awards. Exhibit II-2 presents a table of error in Pell awards.

Other significant findings about Pell Grant Payment Error include:

- Average absolute error is $489 for students with error.
- Student error accounts for about $365 million in absolute error. This is over two and one-half times the amount of institutional error ($126 million).
- About 24.8 percent of Pell recipients had errors attributable to students, while in only 4.6 percent of cases was there an error attributable to the institution.
- Overawards accounted for a larger share of Pell payment error (7.8 percent overall) than did underawards (2.1 percent overall).

Exhibit II-2

PELL GRANT PAYMENT ERROR[1]

Award Year 1988-89

Error Measure	Pell Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
OVERALL				
Absolute	28.2(±2.7)	9.9(±1.4)	481	489
Overaward	19.6(±2.2)	7.8(±1.3)	379	553
Underaward	8.6(±2.0)	2.1(±0.6)	102	344
STUDENT				
Absolute	24.8(±2.6)	7.5(±1.1)	365	422
Overaward	15.9(±2.0)	5.4(±0.9)	263	470
Underaward	8.9(±2.0)	2.1(±0.6)	102	338
INSTITUTIONAL				
Absolute	4.6(±1.2)	2.6(±0.9)	126	783
Overaward	4.4(±1.2)	2.5(±0.9)	122	788
Underaward	0.1(±0.2)	0.1(±0.1)	5	595

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 3.3 million Pell Grants awarded during 1988-89 award year.
3. Based on $3.9 billion Pell Grants awarded during 1988-89 award year.

2. Cost to the Federal Government

The Pell Grant program cost to the Federal government measures the degree to which the intent of the law regarding the Pell Grant program is not being met by the delivery system. This measure includes quality errors as well as liabilities. Although it is not possible to totally eliminate errors resulting in cost to the Federal government, it is desirable to concentrate on reducing these errors. It may be necessary to modify the delivery system to meet this goal.

For the Pell Grant program, the cost to the Federal government is defined to be the Pell dollars overawarded. Estimates of the cost to the government due to errors in the Pell program are shown in the following table. Note that student and institutional error do not sum to overall error in the table because of offsetting errors.

Pell Program Cost to the Federal Government (Award Year 1988-89)

Source of Error	Total Cost $ Millions
Student	263
Institutional	122
Overall	379

C. Errors in the Campus-Based Programs

Error in the Campus-Based program is measured in the following three ways:

- Campus-Based Need Error
- Campus-Based Distributional Error
- Campus-Based Award in Excess of Need Error

1. Campus-Based Need Error

Student need is defined as the difference between the cost of attendance and the sum of the expected family contribution and other known financial aid awarded before Campus-Based aid. Campus-Based Need Error is defined as the student need computed from reported data minus student need computed from best data.

Exhibit II-3 summarizes our estimates of Campus-Based Need Error. Approximately 50 percent of all students receiving Campus-Based aid have errors in calculated need of over $50. This amount accounts for only about 11.3 percent of total Campus-Based need. The average need error of students having a need error was $978. Other highlights of the analysis of need error include:

- The percent of institutional absolute need dollars in error (6.2) is very close to percent of student need dollars in error (5.7 percent).
- The percent of students with need error was evenly split between overstatement error (26 percent) and understatement error (25 percent). However, overstatement error accounted for 7.1 percent of need dollars as opposed to only 4.2 percent for understatement error.

CAMPUS-BASED NEED ERROR[1]

Award Year 1988-89

Error Measure	Campus-Based Need Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
OVERALL				
Absolute	51.0(±2.9)	11.3(±1.4)	656	978
Overstatement	26.0(±2.7)	7.1(±1.3)	412	1,207
Understatement	25.0(±2.5)	4.2(±0.7)	244	740
STUDENT				
Absolute	37.6(±2.9)	5.7(±1.0)	331	669
Overstatement	21.3(±2.5)	3.6(±0.8)	207	743
Understatement	16.3(±2.1)	2.1(±0.6)	122	572
INSTITUTIONAL				
Absolute	20.9(±2.3)	6.2(±1.1)	360	1,307
Overstatement	8.6(±1.6)	3.9(±1.1)	226	1,985
Understatement	12.2(±1.9)	2.3(±0.5)	134	827

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 2.2 million Campus-Based awards made during 1988-89 year.
3. Based on an estimated total Campus-Based need of $5.8 billion. ($2.1 billion awarded through Campus-Based programs in 1988-89 award).

- The greatest average need error resulted from institutional overstatements of need ($1,985). The smallest average need error ($572) resulted from student errors leading to an understatement of need.

Need error does not translate directly into error in the Campus-Based award because a portion of the Campus-Based need is often left unmet. Need error is an important indicator of the quality of the Title IV delivery system because consideration of student need is an important factor in the financial aid officer's final decision on distribution of the institution's Campus-Based funds.

2. Campus-Based Distributional Error

Campus-Based Distributional Error, summarized in Exhibit II-4, is an estimate of the payment consequences of all need errors. Distributional error is computed as the actual Campus-Based award minus the best Campus-Based award, where the best Campus-Based award is calculated using the best need data and the institution's packaging guidelines. Distributional error is not an error in the regulatory sense of the word, but rather is an indication of the quality of Campus-Based distribution. A distributional error could occur when an institution fails to follow its packaging guidelines, even though the award did not violate the regulations governing Title IV aid. We did not collect documentation sufficient to determine whether departures from an institution's stated packaging policies were made intentionally or through oversight.

In the 1988-89 academic year, over $2.1 billion was awarded to students participating in the Campus-Based programs. Of this amount 21.5 percent, or $453 million, was awarded in error. About 43 percent of students receiving Campus-Based aid have absolute errors

CAMPUS-BASED DISTRIBUTIONAL ERROR[1]

Award Year 1988-89

Error Measure	Campus-Based Distributional Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
OVERALL				
Absolute	43.0 (±2.9)	21.5 (±2.3)	453	819
Overaward	32.7 (±2.8)	17.3 (±2.1)	364	864
Underaward	10.3 (±1.8)	4.3 (±1.2)	91	876
STUDENT				
Absolute	30.9 (±2.8)	15.1 (±2.0)	318	799
Overaward	23.9 (±2.6)	12.3 (±1.8)	259	843
Underaward	7.0 (±1.5)	2.8 (±1.0)	59	649
INSTITUTIONAL				
Absolute	18.5 (±2.2)	9.0 (±1.5)	190	801
Overaward	13.7 (±2.0)	7.2 (±1.4)	152	866
Underaward	4.8 (±1.2)	1.8 (±0.7)	38	615

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 2.2 million Campus-Based awards made during 1988-89 award year.
3. Based on $2.1 billion awarded through the Campus-Based programs in 1988-89 award year.

in award of over $50. Other significant results of the analysis of Campus-Based Distributional Error include:

- While absolute student errors are more frequent than absolute institutional errors in Campus-Based distribution (30.9 percent of students versus 18.5 percent, respectively), the dollar impact of Campus-Based Distributional error by institutions is similar ($799 for absolute student error and $801 for absolute institutional error).
- Overawards account for a much greater percentage of dollar errors (17.3 percent) than do underawards (4.3 percent).

Distributional error is important because this type of error measures the amount of Campus-Based dollars (21 percent overall) that would be distributed differently, either by awarding aid to other students or by changing the amounts awarded to the same students, if there were no errors in the delivery system.

3. Campus-Based Award in Excess of Need Error

Campus-Based award in excess of need, a measure that approximates the regulatory definition of error in the Campus-Based program, is the amount by which the actual Campus-Based award exceeds the best Campus-Based need. Award in excess of need, as shown in Exhibit II-5, totalled $67 million in the 1988-89 award year, or about 3.2 percent of all dollars awarded. The mean error per recipient was $629 for the 8.3 percent of all students who received Campus-Based financial assistance and who had an award in excess of need. About 7.4 percent of recipients had student errors, amounting to a total of $57 million in error. Only 3.8 percent of recipients had Campus-Based awards in excess of need attributable to institutional error, representing $36 million.

CAMPUS-BASED AWARD IN EXCESS OF NEED[1]

Award Year 1988-89

Error Measure	Campus-Based Award in Excess of Need Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
Overall	8.3(±1.9)	3.2(±0.8)	67	629
Student	7.4(±1.8)	2.7(±0.8)	57	589
Institutional	3.8(±1.2)	1.7(±0.6)	36	714

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 2.2 million Campus-Based awards made during the 1988-89 award year.
3. Based on $2.1 billion awarded through the Campus Based programs in 1988-89 award year.

4. Cost to Federal Government

Unlike the Pell program, Campus-Based errors are not directly tied to Federal government costs for the following two reasons:

- Only a portion of the money distributed in the Campus-Based programs is paid by the government.
- A financial aid administrator has considerable freedom in setting policies for distributing Campus-Based program funds at his or her institution. An error corrected for one student could mean a redistribution of funds to other students, instead of a savings to the Federal government (e.g., if the institution had discovered a $500 overaward to a student, the money might have been awarded to another student instead of being returned to the government).

The cost to the Federal government due to errors in the Campus-Based program was estimated by multiplying the total amount of Campus-Based awards in excess of need ($67 million) by the percentage of all Campus-Based dollars that were contributed through Title IV funds (60.3 percent). The 60.3 percent figure was calculated as a weighted average of percentage costs for the Perkins Loan, Campus Work Study, and SEOG programs as detailed in the table below. The second table on the following page shows cost to the Federal government by source of error.

D. Error in the Stafford Loan Program

Error in the Stafford Loan Program is measured by certification error and loan amount error.

1. Stafford Loan Overcertification Error

Stafford Loan Overcertification Error is computed as the actual certification minus the

Campus-Based Cost to the Federal Government (Award Year 1988-89)

Campus-Based Program	Campus-Based Available Aid ($ millions)	Federal Government Cost as a Percentage of Aid Available
Perkins Loan	884.0	23.2
College Work Study	780.3	80.0
SEOG	442.4	100.0
Weighted Average		60.3

Campus-Based Cost to the Federal Government (Award Year 1988-89)

Source of Error	Total Cost $ Millions
Student	34
Institutional	22
Overall	40

best certification. For the purposes of this study, undercertifications are not considered to be errors, as some students purposely accept a smaller loan. The best certification is the best Stafford Loan need or the program limit, whichever is less; the best Stafford

Loan need is calculated as the difference between the cost of attendance and the sum of the expected family contribution and other financial assistance available at the time of Stafford award was calculated. Exhibit II-6 presents a table of certification errors in the Stafford Loan program. Highlights of this analysis include:

- Stafford Loan overcertification errors affect 9.6 percent of all certification dollars and 20.3 percent of the students who are certified for Stafford Loans. The mean error per student with overcertification error is $1,277.
- The percent of certification dollars in error is higher for institutional errors than for student errors (6.0 percent of dollars for institutions versus 4.2 percent of dollars for students). However, student errors were found for 12.9 percent of all certifications while institutional errors were observed for only 11.1 percent of the certifications.

2. Stafford Loan Overaward Error

Stafford Loan Overaward Error is defined as the extent to which the actual Stafford Loan exceeds the best certification amount.

The 1988-89 Stafford Loan program made $8.4 billion in aid available to 3.2 million students attending postsecondary institutions. Of this amount, 18.3 percent of all loans contained an overaward error. This translated to over $742 million in overaward error, or 8.8 percent of all dollars awarded. Exhibit II-7 presents a summary of Stafford Loan Overaward Errors. Other findings of this analysis include:

- Student errors accounted for 4.0 percent of the loan dollars, or $337 million. The average student error for students having error was $880.
- Institutional errors amounted to $447 million, or 5.3 percent of the total program dollars. The average Stafford overaward institutional error was $1,390 for those recipients having error.

Exhibit II-6

STAFFORD LOAN OVERCERTIFICATION ERROR[1]

Award Year 1988-89

Error Measure	Stafford Loan Overcertification Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
Overall	20.3(±1.8)	9.6(±1.7)	860	1,277
Student	12.9(±2.9)	4.2(±1.0)	376	870
Institutional	11.1(±2.7)	6.0(±1.4)	537	1,464

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 3.2 million Stafford Loans awarded in the 1988-89 award year. Estimated total certifications equaled $9.0 billion.
3. Based on $8.4 billion available to students through Stafford Loan program during 1988-89 award year.

Exhibit II-7

STAFFORD LOAN OVERAWARD ERROR[1]

Award Year 1988-89

Error Measure	Stafford Loan Overaward Error			
	Percent of Recipients[2] with Error	Percent of Dollars[3] in Error	Total Amount ($ Millions)	Mean Error Per Recipient with Error ($)
Overall	18.3(±2.8)	8.8(±1.6)	742	1,223
Student	11.5(±2.7)	4.0(±1.1)	337	880
Institutional	9.6(±1.6)	5.3(±1.3)	447	1,390

1. Estimates are from the 1988-89 Integrated Quality Control Measurement Project conducted for the Department of Education by Price Waterhouse in association with Pelavin Associates and The Gallup Organization.
2. Based on 3.2 million Stafford Loans awarded during 1988-89 award year.

Much of the Stafford Overaward Error is attributable to other resources made available to the student after the Stafford Loan has been certified. While this is not considered a regulatory error, it is a quality error measured by IQCMP and does lead to additional cost to the Federal government.

3. Cost to the Federal Government

As with Campus-Based error, care should be taken not to interpret Stafford Loan error as identical to cost to the Federal government. Also, these overaward figures include quality errors and are not necessarily liabilities. Nonetheless, a significant problem exists as shown in these estimates.

To estimate the cost to the Federal government for the Stafford Loan program over the life, the total overaward dollars were multiplied by 0.513, the program costs per dollar loaned, as estimated by ED. Appendix C presents a worksheet used by ED to calculate the program costs per dollar loaned. Estimates for the cost to the Federal government due to Stafford Loan errors for the 1988-89 award year are shown in the table below.

E. Comparison of IQCMP and Stage II Results

This section compares key error measurements from the current IQCMP study (evaluating the 1988-89 award year) with those of the prior Stage Two study (evaluating the 1985-86 award year). These results are summarized in Exhibit II-8.

As shown, current study estimates of Pell and Campus-Based error are significantly

Stafford Loan Cost to the Federal Government (Award Year 1988-89)

Source of Error	Total Life Cycle* Cost $ Millions
Student	172
Institutional	229
Overall	380

* Assumes a 10 year repayment period.

smaller than those of Stage Two. Differences between the two sets of results are most noticeable for Pell institutional error and Campus-Based student error. The two studies provide similar projections for Stafford overcertification error.

Differences between the two sets of error estimates are due to two factors: (1) changes to the financial aid delivery system, and (2) differences between the two study methodologies.

Several changes have been made to the financial aid delivery system during the 3-year period between studies. Some of these changes have undoubtedly contributed to a true reduction in error rates. For example, the financial aid formula has been revised to

ABSOLUTE ERROR RATE COMPARISON: IQCMP (1988-1989) AND STAGE TWO (1985-1986)

Error Measure	Percent of Recipients with Error		Percent of Dollars in Error		Mean Error per Recipient with Error ($)	
	IQCMP	STAGE TWO	IQCMP	STAGE TWO	IQCMP	STAGE TWO
PELL ERROR						
Overall	28.2	54.4	9.9	21.1	489	502
Student	24.8	32.3	7.5	12.0	422	486
Institutional	4.6	30.0	2.6	11.0	783	460
CAMPUS-BASED NEED ERROR						
Overall	51.0	77.2	11.3	23.8	978	1,080
Student	37.6	64.5	5.7	18.6	669	1,012
Institutional	20.9	31.5	6.2	7.9	1,307	877
CAMPUS-BASED AWARD IN EXCESS OF NEED						
Overall	8.3	22.5	3.2	14.0	629	921
Student	7.4	12.7	2.7	7.2	589	844
Institutional	3.8	13.4	1.7	7.2	714	793
CAMPUS-BASED DISTRIBUTIONAL ERROR						
Overall	43.0	69.1	21.5	30.2	819	649
Student	30.9	60.5	15.1	25.0	799	613
Institutional	18.5	27.3	9.0	10.9	801	590
STAFFORD LOAN OVERCERTIFICATION						
Overall	20.3	20.1	9.6	10.2	1,277	1,306
Student	12.9	10.6	4.2	4.4	870	1,065
Institutional	11.1	13.5	6.0	6.5	1,464	1,238

reduce or eliminate the effect of certain error-prone data elements (e.g., the current formula no longer uses expected year income in place of base year income for certain dependent students). Also, the use of professional judgment to override individual data elements, Pell Student Aid Indexes, and award amounts was introduced in the Pell and Stafford Loan programs. The increased use of professional judgment will decrease error rates, because the changed data is never considered to be an error, provided the basis of the professional judgment is documented. Although there have been significant changes to the financial aid delivery system, differences between the methodologies used in the two quality measurement studies are significant enough to make uninformed comparisons between the two sets of study results misleading.

The Stage Two study was ED's first comprehensive quality measurement study of the Title IV programs. While the current IQCMP is largely patterned after the Stage Two study, certain methodological enhancements were incorporated in ED's second comprehensive quality measurement study. Many of these enhancements are extensions of approaches used in the Stage Two study that had been suggested by Stage Two project team members.

Each methodological difference between IQCMP and Stage Two was carefully examined prior to implementation. Analysis of IQCMP and Stage Two data confirmed that the changes greatly improve the precision of the error measurements. As further confirmatory evidence, we compared IQCMP results for institutions participating in the Institutional Quality Control Pilot (IQC Pilot) project to error measurements made independently by the IQC Pilot schools themselves. The similarity of our measurements

to those made by the IQC Pilot schools supported our conclusion that the methodological changes resulted in precise error measurements.

Our analysis of IQCMP and Stage Two data showed that the enhancements included in IQCMP generally reduce, often significantly, the level of error estimated by the study. Thus, much of the difference between IQCMP and Stage Two results is probably attributable to the improved measurement of delivery system error. Unfortunately, we are unable to quantify the extent to which differences in the results from the two studies reflect true reductions in delivery system error.

Even though the IQCMP estimates of delivery system error are smaller than the Stage Two estimate, the IQCMP results still show that there is a significant amount of error in the Title IV delivery system. This remaining error may be reduced through further improvements in the procedures and methods used in awarding student financial assistance. Our recommended actions to reduce error are contained in Section VII of this report.

III. SOURCES OF ERROR IN THE TITLE IV FINANCIAL AID PROGRAMS

A. Overview

Chapter II discussed overall institutional and student error in the Title IV programs. This chapter examines the components of institutional and student error. Institutional and student error in each of the three programs is further decomposed into marginal error, the most detailed level of error in this study. Marginal errors measure the effect of errors caused by individual components of award calculation and disbursement.

Marginal error is calculated by comparing: (1) the award calculated with all reported values, and (2) the award calculated with all reported values and one "best" value. The difference between the two awards represents the marginal error caused by substituting the best item. Like overall error, marginal error can be divided into institutional marginal error and student marginal error. Although each marginal error represents a component of overall error, marginal error will not sum to overall institutional and student error because:

- some errors may cancel other errors
- some errors tend to occur in combination with other errors
- some errors have a carryover effect on other errors (i.e., by being in error they will, by definition, cause other items to be in error)

Only those items which produced significant marginal error are discussed in this chapter.

B. Student Marginal Error

Student marginal error refers to the error caused by the student misreporting an individual application item. This type of error occurs when there is a significant discrepancy between the student reported value and the "best" value for a given application item. Best values for application items were obtained from sources outside the institution (e.g., tax return, parent interview) whenever possible. Student marginal error is calculated by substituting the reported value for a single application item (e.g., Student's Adjusted Gross Income) with its "best" value. A new SAI and FC are then calculated using the "best" Student Adjusted Gross Income, and these are used to recompute the best awards and certifications. The difference between the award calculated with the substituted "best" value and the award calculated using only reported values represents the marginal error associated with the substituted application item.

Marginal errors are calculated independently for each application item, and may not necessarily sum to overall student error. Therefore, a marginal error on the student's part should not be viewed as the amount of error reduction attributable to perfect reporting of that data item, but rather the relative contribution to error of that item assuming no corrections to other incorrectly reported items.

Student marginal errors were calculated for three subpopulations: dependent students, independent students, and all students. The subpopulation used was determined by the

group of students that had a value for that application item. For example, the marginal error for Student Adjusted Gross Income was calculated for all students, but marginal error for Parent Adjusted Gross Income was calculated for dependent students only. Similarly, marginal error for Student Number in College was calculated for independent students only. Exhibit III-1 lists the individual application items tested for marginal error and the subpopulation of students on which the error was calculated (dependent students, independent students, or both).

All student marginal errors were calculated using a $50 tolerance, and measured for their effect on Pell absolute award, Campus-Based need, and Stafford Loan overcertification. Exhibit III-2 presents average student marginal error across programs. Only those items which are provided significant marginal error are discussed in this section. Appendix A provides a complete listing of each item's marginal contribution to error. Examination of the significant student marginal errors led to the following findings:

- In general, student marginal error is greater for the variables reported only by dependent students than it is for the variables reported only by independent students or for the variables reported by all students.
- Student Adjusted Gross Income and Student Cash/Savings/Checking account for the greatest number of errors among the variables reported by all students. Student Adjusted Gross Income accounts for the greatest percent of dollars in error. Errors in Student Cash/Savings/Checking, while frequent, generally had a small effect on the dollar amount awarded.

SUBPOPULATION FOR MARGINAL STUDENT ERROR ITEMS

DESCRIPTION	SUBPOPULATION
Date Of Birth	All Students
U.S. Armed Forces Veteran	All Students
Ward Of Court	All Students
Legal Dependent Other Than Spouse	All Students
Claimed As Exemptions On Parents 1986 Income Tax Return	All Students
Claimed As Exemptions On Parents 1987 Income Tax Return	All Students
Claimed As Exemptions On Parents 1988 Income Tax Return	All Students
Received Federal Student Aid 1987-88	All Students
1985 Total Resources Of $4,000 Or More	All Students
1986 Total Resources Of $4,000 Or More	All Students
1987 Total Resources Of $4,000 Or More	All Students
U.S. Citizen	All Students
Year In College	All Students
Candidate for a Bachelor's Degree	All Students
Marital Status	All Students
Student's (& spouse's) 1987 Filing Status	All Students
Student's (& spouse's) 1987 Exemptions	All Students
Student's (Adjusted Gross) 1987 Income	All Students

SUBPOPULATION FOR MARGINAL STUDENT ERROR ITEMS

DESCRIPTION	SUBPOPULATION
Student's (& spouse's) 1987 Taxes Paid	All Students
Student's (& spouse's) Itemized Deductions	All Students
Student's 1987 Income From Work	All Students
Spouse's 1987 Income From Work	All Students
Student's (& spouse's) 1987 Social Security Benefits	All Students
Student's (& spouse's) 1987 AFDC Or ADC	All Students
Student's (& spouse's) 1987 Child Support Received	All Students
Student's (& spouse's) 1987 Other Untaxed Income And Benefits	All Students
Student's (& spouse's) Dislocated Worker Status	All Students
Student's (& spouse's) Displaced Homemaker Status	All Students
Student's (& spouse's) Cash, Checking, Savings	All Students
Student's (& spouse's) Home Value	All Students
Student's (& spouse's) Home Debt	All Students
Student's (& spouse's) Other Real Estate/Investment Value	All Students
Student's (& spouse's) Other Real Estate Investment Debt	All Students
Student's (& spouse's) Business And Farm Value	All Students
Student's (& spouse's) Business And Farm Debt	All Students
Student's Expected GI Bill And Dependents' Educational Assistance Per Month	All Students

SUBPOPULATION FOR MARGINAL STUDENT ERROR ITEMS

DESCRIPTION	SUBPOPULATION
Student's Expected GI Bill And Dependents' Educational Assistance Benefits Number Of Months	All Students
Student's Expected 1988 Income From Work	All Students
Spouse's Expected 1988 Income From Work	All Students
Student's (& spouse's) Expected 1988 Other Taxable Income	All Students
Student's (& spouse's) Expected 1988 Untaxed Income And Benefits	All Students
Parents' Marital Status	Dependent Students
Parents' State Of Legal Residence	Dependent Students
Parents' 1987 Filing Status	Dependent Students
Parents' 1987 Exemptions	Dependent Students
Parents' 1987 Income	Dependent Students
Parents' 1987 Taxes Paid	Dependent Students
Parents' 1987 Itemized Deductions	Dependent Students
Fathers' 1987 Income From Work	Dependent Students
Mothers' 1987 Income From Work	Dependent Students
Parents' 1987 Social Security Benefits	Dependent Students
Parents' 1987 AFDC or ADC	Dependent Students
Parents' 1987 Child Support Received	Dependent Students
Parents' 1987 Other Untaxed Income And Benefits	Dependent Students
Parents' 1987 Total Untaxed Income And Benefits	Dependent Students
Student's (& spouse's) 1987 Total Untaxed Income And Benefits	Dependent Students

SUBPOPULATION FOR MARGINAL STUDENT ERROR ITEMS

DESCRIPTION	SUBPOPULATION
Parents' Home Debt	Dependent Students
Parents' Other Real Estate/Investment Value	Dependent Students
Parents' Other Real Estate/Investment Debt	Dependent Students
Parents' Business And Farm Value	Dependent Students
Parents' Business And Farm Debt	Dependent Students
Parents' 1987 Medical And Dental Expenses	Dependent Students
Parents' 1987 Education Expenses	Dependent Students
Parents' 1987 Children With Education Expenses	Dependent Students
Parents' Dislocated Worker Status	Dependent Students
Parents' Displaced Homemaker Status	Dependent Students
Age Of Older Parent	Dependent Students
Parents' Cash, Checking, Savings	Dependent Students
Parents' Home Value	Dependent Students
Parents' Household Size	Dependent Students

SUBPOPULATION FOR MARGINAL STUDENT ERROR ITEMS

DESCRIPTION	SUBPOPULATION
Parents' Number In College	Dependent Students
Student's Number In College	Dependent Students
Father's Expected 1988 Income From Work	Dependent Students
Mother's Expected 1988 Income From Work	Dependent Students
Parents' Expected 1988 Other Taxable Income	Dependent Students
Parents' Expected 1988 Untaxed Income And Benefits	Dependent Students
Student's (& spouse's) 1987 Medical And Dental Expenses	Independent Students
Student's (& spouse's) 1987 Education Expenses	Independent Students
Student's (& spouse's) 1987 Children With Education Expenses	Independent Students
Student's Household Size	Independent Students
Student's Veterans Contributory Benefits Per Month	Independent Students
Student's Veterans Contributory Benefits Number Of Months	Independent Students

SIGNIFICANT STUDENT MARGINAL ERROR

Average Error Across Programs[1]
Award Year 1988 - 89

Error Type	Average Marginal Error		
	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error Per Recipient with Error ($)
ALL STUDENTS			
Student Adjusted Gross Income	2.5	0.8	888
Student Cash/ Savings/ Checking	2.8	0.3	225
Student Work Income	1.9	0.3	457
Student Other Untaxed Income	1.7	0.4	707
Student U.S. Taxes	1.2	0.1	183
DEPENDENT STUDENTS ONLY			
Parent Household Size	10.5	2.2	529
Parent Home Value	6.1	1.4	491
Parent Other Untaxed Income	5.2	1.4	398
Parent Number in College	4.9	1.5	834
Parent Real Estate/Investment Value	2.6	0.9	563
Parent Work Income	2.3	0.2	270
Parent Adjusted Gross Income	2.2	0.9	1,023
Parent U.S. Taxes	2.2	0.3	406
Parent's Spouse Work Income	2.2	0.3	267
Parent's Home Debt	2.2	0.2	271
INDEPENDENT STUDENTS ONLY			
Student Household Size	2.3	1.1	2,296
Student Number in College	1.7	0.4	311

[1] Unweighted Average of: (1) Pell Absolute Award Error, (2) Campus-Based Need Error, and (3) Stafford Overcertification Error.

- Among the variables reported by dependent students, Parent Household Size generally accounts for the greatest number of errors. Errors in Parents Adjusted Gross Income, while not the most frequent among dependent students, contribute the largest amount of error per dependent student with error ($1,023 per dependent student).

- Student Household Size and Student Number in College are the only significant contributors to error among those variables reported by only independent students. Average error per independent student with a Student Household Size error was greatest at $2,296.

1. Student Marginal Error in the Pell Program

As reported in Chapter II, absolute student error for Pell Grant Payment was found in 24.8 percent of all Pell students in the study. These errors account for 7.5 percent of the dollars in error with a mean error of $422 per student with error. Student marginal error in the Pell Grant Program further decomposes these error rates and attributes the overall error to individual application items.

Exhibit III-3 presents the most significant student marginal errors in the Pell Program, the percent of students that had each error, and the effect each type of error had on award dollars. All figures represent absolute error since the low number of students in each error category make estimates of overaward and underaward errors unreliable. Examining student marginal error in the Pell Grant Program produced the following findings:

SIGNIFICANT STUDENT MARGINAL ERROR

Pell Absolute Error
Award Year 1988 - 89

	Pell Absolute Error		
Error Type	**Percent of Recipients with Error**	**Percent of Dollars in Error**	**Mean Error Per Recipient with Error ($)**
ALL STUDENTS			
Student Cash/ Savings/ Checking	3.1	0.5	205
Student Adjusted Gross Income	1.6	0.9	786
Student Other Untaxed Income	1.5	0.5	476
Student U.S. Taxes	0.9	0.1	139
Student Work Income	0.7	0.2	290
Student Real Estate/ Investment Value	0.5	0.3	729
DEPENDENT STUDENTS ONLY			
Parent Household Size	15.5	3.4	283
Parent Other Untaxed Income	10.3	3.6	448
Parent Home Value	6.6	2.3	444
Parent Social Security Benefits	2.9	1.2	529
Parent Number in College	3.7	0.6	202
Parent U.S. Taxes	1.9	0.4	248
Parent Real Estate/ Investment Value	1.5	1.7	611
Parent Adjusted Gross Income	1.4	0.3	249
Parent Work Income	1.4	0.3	290
Parent's Spouse Work Income	1.2	0.3	296
INDEPENDENT STUDENTS ONLY			
Student Household Size	2.9	1.1	576
Student Number in College	1.4	0.5	521

- Among the variables reported by all students, errors in Student Cash/Savings/Checking are the most frequent (3.1 percent of all Pell students) while errors in Student Adjusted Gross Income are the most costly (0.9 percent of dollars in error and mean error of $786 per recipient with error).

- Among the variables reported by dependent students, Parent Household Size and Other Untaxed Income contribute most to Pell error (15.5 percent and 10.3 percent of the recipients and 3.4 percent and 3.6 percent of the dollars, respectively).

- For independent students, Student Household Size accounts for roughly twice as many errors as Student Number in College (2.9 percent versus 1.4 percent) and has nearly three times the impact on dollars in error (1.1 percent versus 0.4 percent).

- Although not the most frequently erroneous item, errors in Real Estate/Investment Value for both parent and student make significant contributions to dollars in error (mean errors per student with error of $611 and $729 respectively).

2. Student Marginal Error in the Campus-Based Programs

Absolute student need error in the Campus-Based program was identified in 37.6 percent of all Campus-Based recipients (Exhibit II-3 of the prior chapter). The effect on total dollars in error was measured at 5.7 percent, with a mean error of $669 for recipients with error. Like Pell Payment error, Campus-Based need error may be further decomposed to identify the source of error through marginal error analysis.

Exhibit III-4 presents the most significant student marginal errors in Campus-Based need error, the percentage of Campus-Based students with the identified error, and the

SIGNIFICANT STUDENT MARGINAL ERROR

Campus Based Need Error
Award Year 1988 - 89

Error Type	Campus Based Need Error		
	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error Per Recipient with Error ($)
ALL STUDENTS			
Student Cash/ Savings/ Checking	4.3	0.3	299
Student Adjusted Gross Income	3.8	0.5	645
Student Work Income	3.6	0.3	335
Student Other Untaxed Income	2.2	0.4	898
Student U.S. Taxes	1.9	0.1	225
Student Real Estate/ Investment Value	1.2	0.2	659
Student's Spouse Work Income	0.6	*	329
Student Social Security Benefits	0.4	0.1	739
DEPENDENT STUDENTS ONLY			
Parent Household Size	10.6	1.9	705
Parent Number in College	8.3	2.6	1,238
Parent Home Value	7.7	1.0	489
Parent Work Income	4.3	0.3	256
Parent Real Estate/Investment Value	4.0	0.4	396
Parent Adjusted Gross Income	3.7	1.1	1,145
Parent U.S. Taxes	3.6	0.2	230
Parent's Spouse Work Income	3.2	0.2	237
Parent Other Untaxed Income	1.8	0.2	435
INDEPENDENT STUDENTS ONLY			
Student Number in College	3.5	0.2	261
Student Household Size	3.4	1.2	1,850

*** LESS THAN 0.05 %**

contribution to total dollars in error. Again, all figures represent absolute error and were calculated using a $50 tolerance on the error. Significant findings of the Campus-Based marginal error analysis include:

- Among the variables reported by all students, Student Cash/Savings/ Checking accounts for the greatest number of Campus-Based students in error (4.3 percent) while Student Adjusted Gross Income contributes most to Campus-Based dollar error (0.5 percent).
- Parent Number in College and Parent Adjusted Gross Income are the most frequent among those variables reported only by dependent students and cause large dollar errors when these items are missed (mean error per student with error of $1,238 and $1,145, respectively).
- Among independent students, errors in Student Household Size and Student Number in College affect roughly the same number of students (3.4 percent and 3.5 percent respectively). While Student Household Size contributes much more than Student Number in College to total dollars in error (1.2 percent versus 0.2 percent), the small number of errors observed in our sample may make this measurement unreliable.

3. Student Marginal Error in the Stafford Loan Program

Stafford Loan student overcertification error was found in 12.9 percent of students who received a Stafford Loan. This translated to 4.2 percent of the total dollars in error with an average error of $870 for those students with error. Decomposing this overall error through marginal error analysis isolates those application items prone to error in the Stafford Loan certification process.

Exhibit III-5 presents the most significant student marginal errors in certifying a Stafford Loan, the percent of Stafford Loan recipients affected, and the contribution to dollar

SIGNIFICANT STUDENT MARGINAL ERROR

Stafford Loan Overcertification Error
Award Year 1988 - 89

	Stafford Loan Overcertification Error		
Error Type	**Percent of Recipients with Error**	**Percent of Dollars in Error**	**Mean Error Per Recipient with Error ($)**
ALL STUDENTS			
Student Adjusted Gross Income	2.2	1.0	1,234
Student Other Untaxed Income	1.5	0.4	748
Student Work Income	1.4	0.4	747
Student U.S. Taxes	1.0	0.1	184
Student Cash/ Savings/ Checking	1.0	0.1	170
Student Real Estate/ Investment Value	0.4	0.2	1,125
Student's Spouse Work Income	0.2	*	186
DEPENDENT STUDENTS ONLY			
Parent Household Size	5.4	1.4	600
Parent Home Value	4.0	1.0	541
Parent Other Untaxed Income	3.7	0.5	313
Parent Number in College	2.6	1.2	1,063
Parent Social Security Benefits	2.6	0.7	613
Parent Real Estate/ Investment Value	2.4	0.7	682
Parent U.S. Taxes	1.0	0.3	741
Parent Adjusted Gross Income	1.6	1.2	1,675
Parent Work Income	1.2	0.1	264
INDEPENDENT STUDENTS ONLY			
Student Household Size	0.7	1.0	4,462
Student Number in College	0.2	*	152

*** LESS THAN 0.05%**

error associated with each application item. An examination of the student marginal errors affecting Stafford Loan certification produced the following results:

- In general, there are fewer students with Stafford Loan certification error than with Campus-Based need or Pell award error, but the mean error for students with Stafford overcertification error is, on average, much higher. This results because the typical Stafford certification is much larger than the typical Pell award and generally higher than the Campus-Based need.

- Among the variables reported by all students, Student Adjusted Gross Income is by far the largest contributor to Stafford overcertification error (2.2 percent of Stafford Loan recipients in error account for 1.0 percent of total dollars in error).

- Parent Home Value is ranked just below Parent Household Size for contribution to error among dependent students. Errors in Parent Household Size affected 5.4 percent of the Stafford Loan students, while Parent Home Value affected 4.0 percent.

- Among dependent students, Parent Adjusted Gross Income accounts for only 1.6 percent of the recipients with error, but recipients had an average overcertification error of $1,675. Parent Number in College caused an average overcertification error of $1,063 per student with error.

- Among independent students receiving Stafford Loans, only 0.7 percent had an error in Student Household Size and only 0.2 percent had an error in Student Number in College.

4. Student Marginal Error Groupings

One of the limitations of marginal error is that, because usually a small percentage students have an error for a single application item, estimates of marginal error may be unreliable. Grouping application items, however, allows more precise evaluations of error. Exhibit III-6 lists the logical groupings of student data items for which we measured student error. Grouped marginal errors are calculated by substituting the

Exhibit
III-6

EXPLANATION OF STUDENT MARGINAL ERROR GROUPS

Group:	Dependency Status Items	Student Tax * Items	Student Untaxed Items	Student Asset Items	Parent Tax* Items	Parent Untaxed Items	Parent Asset Items
Subpopulation	All Students	All Students	All Students	All Students	Dependent Students Only	Dependent Students Only	Dependent Students Only
Application Items Included in Group	• Student Date of Birth • Number of legal dependents • Ward of the Court • U.S. Armed Forces Veteran • Student Marital Status • Year in college • Federal aid received 1987-88 • 1985 total resources of $4000 or more • 1986 total resources of $4000 or more • 1987 total resources of $4000 or more • Claimed as exemption on parents 1986 tax return • Claimed as exemption on parents 1987 tax return • Claimed as exemption on parents 1988 tax return	• Student adjusted gross income • Student U.S. taxes paid • Student work income • Student's spouse work income • Student itemized deductions • Student tax form filed • Student number of exemptions	• Student child support received • Student Social Security benefits • Student AFDC received • Student other untaxed income	• Student cash/ savings/ checking • Student home value • Student home debt • Student business/ farm value • Student real estate/ investment value • Student real estate/ investment debt	• Parents adjusted gross income • Parent U.S. taxes paid • Parent work income • Parent's spouse work income • Parent itemized deductions • Parent tax form filed • Parent number of exemptions	• Parent child support received • Parent Social Security benefits • Parent AFDC received	• Parent cash/ savings/ checking • Parent home value • Parent home debt • Parent business/ farm value • Parent real estate/ investment value • Parent real estate/ investment debt

* All tax items refer to a 1987 tax return

reported values for each application item in a group with the "best" values for each item in the group.

For example, marginal error for Student Untaxed Income is calculated using best values for child support received, social security benefits, AFDC received, and other untaxed income. A new SAI and FC are computed using the "best" values for the grouped application items, and these are used to recompute the best awards and certifications. The difference between the award calculated with the substituted "best" values for all items in the group and the award calculated using only reported values represents the marginal error associated with that group of application items.

All student marginal errors groupings were calculated using a $50 tolerance, and measured for their effect on Pell absolute award, Campus-Based need, and Stafford Loan overcertification. Exhibit III-7 presents the groups of student marginal errors tested, the percent of students in error, and the contribution to dollar error associated with each group of application items. Grouping the student marginal errors provided the following findings:

- Student Tax Items as a group contribute most to error among the variable groupings reported by all students and across all awards: Pell (2.7 percent), Campus-Based (3.5 percent), and Stafford (7.7 percent).
- Parent Asset Items and Parent Tax Items are both high contributors to student error in dependent students across all programs. Parent Asset items as a group are by far the largest contributors to Pell dollar error (2.8 percent of dollars in error).

GROUPED STUDENT MARGINAL ERROR

Award Year 1988-89

Group	Award[1] type	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error per Recipient with Error ($)
Dependency Status Items	Pell	0.9	0.4	665
	Campus-Based	2.0	0.6	1,382
	Stafford Loan	1.3	0.8	1,590
	Unweighted Avg.	1.4	0.6	1,212
Student Tax Items	Pell	2.7	0.8	437
	Campus-Based	7.7	0.8	463
	Stafford Loan	3.5	1.1	812
	Unweighted Avg.	4.6	0.9	571
Student Untaxed Income Items	Pell	1.7	0.5	453
	Campus-Based	2.6	0.5	880
	Stafford Loan	1.6	0.4	733
	Unweighted Avg.	2.0	0.5	689
Student Asset Items	Pell	1.2	0.4	495
	Campus-Based	1.6	0.3	922
	Stafford Loan	0.8	0.4	1,248
	Unweighted Avg.	1.2	0.4	888
Parent Tax Items (Dependents Only)	Pell	5.8	1.6	355
	Campus-Based	10.6	1.5	554
	Stafford Loan	3.0	1.1	835
	Unweighted Avg.	6.5	1.4	581
Parent Untaxed Income Items (Dependents Only)	Pell	3.7	0.7	238
	Campus-Based	2.8	0.4	503
	Stafford Loan	4.4	1.2	633
	Unweighted Avg.	3.6	0.8	458
Parent Asset Items (Dependents Only)	Pell	8.3	2.8	440
	Campus-Based	12.2	1.6	529
	Stafford Loan	8.0	1.9	543
	Unweighted Avg.	9.0	2.1	504

1 All Student Marginal Error was measured for its effect on: (1) Pell Award, (2) Campus-Based need, and (3) Stafford Loan Overcertification.

- About one in every ten dependent Campus-Based students had an error with at least one Parent Tax or one Parent Asset Item.

- Although Dependency Status Items do not account for large number of student errors, they do have a large effect on dollar error when they are missed. Campus-Based students had an average need error of $1,382 and Stafford loan recipients had an average overcertification error of $1,590.

C. Institutional Marginal Error

Institutional marginal error is reported separately for three categories: procedural error, calculation error, and distribution error. Procedural error refers to the error caused by an institution's failure to follow the established guidelines for granting awards (e.g., disbursing a Pell Grant without a signed Statement of Educational Purpose in the student's file, or disbursing more than one payment without a Financial Aid Transcript in the student's file). Calculation error refers to the error caused by an institution using incorrect information to calculate an award or by a mathematical error in performing the award calculation. Using an incorrect Pell award to compute Campus-Based need, or using the wrong cost of attendance in calculating a Stafford Loan certification are examples of calculation error. Distribution error refers to the error caused by an institution disbursing an incorrect amount with respect to the expected award or certification. Allowing a Stafford Loan to exceed the certification, or distributing Campus-Based aid in excess of need are examples of distribution error.

Institution marginal error is calculated by substituting the institution reported value for a single award calculation component (e.g., Pell cost of attendance) with its "best" value. Best values for the calculation components of each award were obtained via award-specific questions in the Student Record Abstract. New awards and certifications are then calculated using the best value for, in this case, Pell cost of attendance. The difference between the award calculated with the substituted best value and the award calculated using only reported values represents the marginal error associated with the substituted calculation component (Pell cost of attendance).

Procedural error and calculation error are measured for their effect on Pell absolute award, Campus-Based need, and Stafford overcertification. However, because distribution errors effect award distribution without effecting need or certification, institutional distribution errors were measured for their effect only upon Campus-Based distribution and Stafford Loan Overaward error. All of the institution marginal errors were calculated using a $50 tolerance on the error. Examination of the significant institution marginal errors across all programs led to the following findings:

- Procedural error does not contribute as much to institutional error as does either Calculation error or Distribution error.
- While the frequency of procedural errors is small, mean error per student with error is large, especially in the Campus-Based and Stafford Loan programs. This is due to the definition Procedural error: if a procedural error occurs then the entire award is considered in error.
- While the Pell Grant and Stafford Loan are typically overawarded and overcertified as a result of institutional errors, the Campus-Based programs are typically underawarded.

- **Institutional marginal error is dominated largely by calculation errors, which include the highest institutional marginal errors tested. Calculation error is dominated by errors in factoring the Pell award and all other aid.**

1. Procedural Error

Procedural error occurs when an institution fails to follow the established guidelines for granting awards (e.g., disbursing a Pell Grant without a signed Statement of Educational Purpose in the student's file). Procedural errors are often referred to as categorical errors; if a student has a procedural error, he or she is ineligible for any financial aid, and the entire award (or the amount disbursed after the first payment in the case of Financial Aid Transcript error) is considered to be in error. For example, not having a signed Statement of Academic Progress in the student's file is considered a procedural error and the student is not eligible to receive financial aid.

Overall institutional error rates were found in 4.6 percent of all Pell students (Pell Award Error), in 20.9 percent of all Campus-Based students (Campus-Based need error), in 9.6 percent of all students receiving a Stafford Loan (Stafford Loan overcertification error). Examining procedural error further decomposes these error rates and attributes the overall error to individual procedural requirements.

Exhibit III-8 presents the components of procedural error, the percent of students in

MARGINAL INSTITUTIONAL ERROR -- PROCEDURAL ERROR

Pell Award Procedural Error Type	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error Per Recipient with Error($)
Bachelor's Degree	0.7	0.6	1,278
Statement of Educational Purpose	0.5	0.6	1,614
Selective Service Compliance	0.4	0.6	1,923
Financial Aid Transcript	0.4	0.3	875
Independent: no documentation	0.1	0.1	1,886
Statement of Academic Progress	*	0.1	1,881
Ability to Benefit	*	*	1,896
Default/Repayment	*	*	915
U.S. Citizenship	0	0	0
Half Time Enrollment	0	0	0
Grouped [1]	1.0	1.2	1,690

Campus-Based Need Procedural Error Type	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error Per Recipient with Error($)
Statement of Educational Purpose	0.4	0.5	5,111
Financial Aid Transcript	0.3	*	664
Selective Service Compliance	0.1	0.1	5,029
Default/Repayment	0.1	0.1	2,867
Statement of Academic Progress	0.1	*	2,445
Bachelor's Degree (SEOG only)	0.1	*	511
Ability to Benefit	*	*	7,627
Independent: no documentation	*	*	3,481
U.S. Citizenship	0	0	0
Half Time Enrollment	N/A	N/A	N/A
Grouped [1]	0.7	0.8	4,635

Stafford Loan Overcertification Procecdural Error Type	Percent of Recipients with Error	Percent of Dollars in Error	Mean Error Per Recipient with Error($)
Half Time Enrollment	1.3	1.2	2,443
Selective Service Compliance	0.6	0.6	2,584
Statement of Educational Purpose	0.5	0.6	3,140
Default/Repayment	0.2	0.1	1,044
Financial Aid Transcript	0.2	0.2	3,397
Independent: no documentation	0.1	0.1	2,625
Statement of Academic Progress	*	*	3,210
Ability to Benefit	*	*	2,625
U.S. Citizenship	0.0	0.0	0
Bachelor's Degree	N/A	N/A	N/A
Grouped [1]	2.2	2.1	2,522

*** LESS THAN 0.05%**

1. Grouped errors **do not** include the effect of Bachelor's Degree or Financial Aid Transcript errors.

error, and the impact on dollar error for each of the three programs studied. Significant findings from the procedural error analysis include:

- Procedural errors explain very little institutional error across program, but they do have high payment consequences (mean errors of $1,000 or more for recipients with error).
- Bachelor's Degree error and Financial Aid Transcript error contribute significantly to Pell and Campus-Based procedural error. Statement of Educational Purpose and Selective Service compliance rank persistently high across programs.
- Less than half time enrollment error dominates procedural error for Stafford Loan overcertification, but may be overstated since our data collection effort did not include confirmation from the institution on enrollment status. (Pell award did include an enrollment status check, and all error was explained by the Financial Aid Officer).

2. Calculation Error

Calculation error refers to the error caused by an institution using incorrect information to calculate an award. Calculation error includes errors in: (1) calculating the correct cost of attendance, and (2) factoring other financial aid. Calculation error, like procedural error, is measured for the Pell award, Campus-Based need, and Stafford overcertification. However, errors in factoring other financial aid apply only to Campus-Based and Stafford Loan awards (the calculation of Pell award does not consider other financial aid).

Exhibit III-9 presents the components of calculation error, the percent of students in error, and the contribution to dollar error made by each type of error. A review of

MARGINAL INSTITUTIONAL ERROR CALCULATION ERROR

AWARD YEAR 1988-1989

ERROR TYPE	AWARD TYPE[1]	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
COST OF ATTENDANCE	PELL	1.6	0.2	168
	CB	2.2	0.4	820
	SL	2.5	1.0	1,039
FACTORING OTHER AID	CB	18.9	1.2	1,221
	SL	4.4	1.2	759

1. Calculation error was measured for its effect on: (1) Pell Award, (2) Campus-Based Need, and (3) Stafford Loan Overcertification

calculation error produced the following findings:

- Cost of attendance error affects a greater percent of Stafford Loan recipients than Campus-Based or Pell recipients. Stafford Loan cost of attendance error also had high payment consequences (1.0 percent of dollars in error and an average $1,039 error for those students that had error).

- Errors in Factoring Other Aid into Campus-Based need (includes Pell award, Stafford Loan certification and other financial assistance) is the greatest contributor to calculation error (18.9 percent of students in error out of 20.8 percent with a calculation error).

- Errors in calculating the Campus-Based award present a costly component of institutional error: 5.6 percent of the dollars in error, and an average error of $1,191 per student with error.

3. Distribution Error

Distribution error refers to the error caused by an institution disbursing an incorrect amount with respect to the expected award or certification. Certifying a Stafford Loan which exceeds the maximum eligibility amount for that student and awarding a Campus-Based package in excess of student need are examples of distribution error. Distribution errors include:

- Disbursement Error Distributing a Pell disbursement inconsistent with the Student Aid Report; distributing Campus-Based aid inconsistent with the packaged Campus-Based award.

- Initial Overaward Error Distributing Campus-Based aid which exceeds Campus-Based need; certifying a Stafford Loan which exceeds maximum loan eligibility.

Distribution errors effect the award distribution without effecting need certification; we therefore measure distribution errors for their effect upon Campus-Based distribution and Stafford Loan Overaward, instead of Campus-Based need and Stafford Loan certification.

Exhibit III-10 presents the two types of distribution error, the percent of students in error, and the impact on total dollars distributed for each of the programs affected. Significant findings from distribution error analysis include:

- Campus-Based disbursement error contributes a significant amount to institutional error (9.7 percent of students in error). However, we did not find any cases of Pell Disbursement error. The fact that our data collection effort allowed a confirmation with the institution on Pell Disbursement errors but not Campus-Based Disbursement errors suggests that Campus-Based Disbursement error may be overstated.

- Campus-Based overawards account for a greater number of institutional errors than do Stafford Loan overawards (2.7 and 1.8 percent of students with error, respectively). However, Stafford overawards have a greater impact on dollar error (1.3 percent of the dollars in error as compared to 0.6 percent for Campus-Based overawards).

Of the three types of institution marginal errors studied, calculation error is by far the greatest contributor to error. While procedural and disbursement error are meaningful measures of institutional error, calculation error represents a persistent problem for institutions and, consequently, a source of high dollar error as well.

MARGINAL INSTITUTIONAL ERROR
DISTRIBUTION ERROR

AWARD YEAR 1988-1989

ERROR TYPE	AWARD TYPE 1	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
DISBURSEMENT ERROR	PELL	0.0	0.0	0.0
	CB	9.7	1.5	679
INITIAL OVERWARDS	CB	2.7	0.6	962
	SL	1.8	1.3	1,911

1. Distribution error was measured for its effect on: (1) Pell Award, (2) Campus Based Distribution, and (3) Stafford Loan Overaward

IV. ERROR PROFILE ANALYSIS

The marginal error analyses of the prior chapter examined the sources of error in student aid awards by identifying those data elements used in the award calculation that are most prone to error. This chapter presents the results of an error profile analysis to identify the characteristics of students and institutions that are associated with error.

The error profile analysis has shown that income has the strongest relationship, among the variables tested, with student error. Independent students with income greater than $15,000 and dependent students whose parents have combined incomes of over $25,000 are predicted to have the highest error rate. The combination of awards that the student received was the variable found to have the strongest relationship to institutional error. These results are discussed in greater detail later in this chapter.

A. Error Profile Analysis Methodology

The error profile analysis conducted during IQCMP developed predictive models to identify characteristics of students and institutions that are associated with error. These models are not intended to be used by ED to target individual students and institutions with error. Rather, predictive models help to identify relationships between error and the characteristics of students and institutions. An appreciation of these relationships furthers our understanding of the causes of error, leading to corrective actions that address those causes.

Separate analyses were conducted to determine the factors associated with student error and the factors associated with institutional error. As a first step in the analysis, two databases were created, one for the analysis of student error and one for the analysis of institutional error.

For each student, we first identified whether any one of the three following types of errors had occurred:

- Absolute Pell Program Error,
- Absolute Campus-Based Need Error, and
- Stafford Loan Overcertification Error.

The student error analysis database included a variable indicating whether a student error of $50 or more had occurred for at least one of these three error measures. Similarly, the institutional error analysis database included a variable indicating whether or not an institutional error of $50 or more had occurred.

The student and institutional error databases each included characteristics of both students and institutions that we believed might be related to error. For example, the student error analysis database included:

- the information reported by the student on the financial aid application,
- the type of aid received by the student,
- the characteristics of the institution attended by the student (institution type and control),

- the procedures used by the institution to verify student data, and
- questions from the student interview about the student's perception of:
  - -- the availability of the information needed to complete the application,
  - -- the complexity of the application, and
  - -- the amount of help received while filling out the application form.

The institutional error analysis database included characteristics of the institution (e.g., type, control, region, etc.) and information on institutional procedures for processing and checking the award (level of automation, procedures for verifying that the correct information was in the student's financial aid file, staffing in the financial aid office, etc.).

We formed categories for all of the variables included in the database. For categorical variables (e.g., yes/no questions, institution type and control, etc.), the predefined categories were used, or were collapsed into fewer categories when the combination was applicable. For continuous variables (e.g., AGI, income, home equity, etc.), categories were formed through a ranking process. Each value of a variable was assigned a score equal to the percentile represented by that value (e.g., the median value for family income was replaced by a score of 50). These scores were all between 0 and 100. The scores were then partitioned into the following categories:

- 10 or less,
- 11 - 25,
- 26 - 50,
- 51 - 75,
- 76 - 90, or
- 91 - 100.

After all the variables were categorized using one of the above methods, contingency tables were formed that compared the categories of each variable to the presence of error (using a $50 tolerance). Chi-squared analysis, a standard statistical technique that measures the association between two categorical variables, was conducted on each variable. Exhibits D-1 and D-2 in Appendix D present examples of the chi-squared analysis for an institutional and a student variable. The results of this analysis are discussed in the following sections.

B. Variables Associated With Error

1. Characteristics Associated With Student Error

Each variable tested for association with student error was tested on the relevant population of independent, dependent, or all students. Parent data (e.g., parent's Adjusted Gross Income and the number in the parent's household), which are reported only by dependent students, were tested on a subset of the database containing only dependent students. Similarly, variables which are reported only by

independent students (e.g., student's Household Size) were tested using a subset of the database containing only independent students. Variables reported by both independent and dependent students (e.g., student's Adjusted Gross Income) were tested using the full database of all students. Exhibit B-1 (Appendix B) presents all the variables that were tested for association with student error and the results of the test.

We found that most of the variables related to student error are associated with income (e.g., total income, family income, net family assets, etc.). A few variables describe general characteristics of the student (e.g., year in college, received help in filing Financial Aid Application, etc.).

2. Characteristics Associated With Institutional Error

Exhibit B-5 (Appendix B) lists the variables tested for association with institutional error. Only a few of the variables (e.g., institution type, institution control, etc.) were found to have a significant relationship with institutional error. Further, two of the variables that were related to error (i.e., policy regarding the collection of tax forms and the methods that were used to inform students about the importance of accurate data and the consequences of misreporting) seem to bear little relationship to institutional error, unless they are surrogates for the dedication of the institution to quality control. Because this is a tenuous interpretation at best, these variables were dropped from further analysis. In addition, two measures of size that showed a

statistically significant relationship with error, awards per full time equivalent staff and number of awards, did not follow a consistently increasing or decreasing trend, so the relationships were deemed spurious.

C. Error Prediction Model

Although the contingency table analysis discussed above is useful in examining characteristics associated with error, it cannot account for the effect of relationships between those characteristics. For example, all of the parent characteristics associated with student error are also related to income. While parent's AFDC received is related to student error, it is possible that the driving force behind this relationship is a low parent income. In order to determine whether there is a true relationship between the amount of the parent's AFDC and error, the value of parent's income must be controlled in the analysis. Controlling the value of one variable while testing another is not possible in a contingency table analysis; multivariate techniques must be used.

One problem to be overcome in the multivariate analysis is that, when many variables are included in the model and each variable has several categories, the model includes so many parameters that it is likely to pick up spurious relationships. To overcome this problem, we employed an approach developed by the IRS as a part of its methodology to select tax returns to be audited. This approach involves a variable transformation based on likelihood ratios, as described below.

As the first step in the multivariate analysis of characteristics related to error, the results of the contingency analysis were used to assign a value to each variable based on the proportion of students with error for the relevant category. For example, suppose a student had AGI of $0 or less. This student would be assigned a value of 31.97 for AGI because, referring to Exhibit D-1, 31.97 percent of students with AGI of $0 or less had a student error. Similarly, a student with AGI between $1 and $600 would be assigned a value of 44.22 for AGI because, as can be seen from Exhibit D-1, 44.22 percent of the students with AGI between $1 and $600 had an error. The effect of this variable transformation is to create a single continuous variable for AGI to replace the six categorical AGI groupings.

After performing the variable transformation, we reduced the number of variables to be included in the model using a stepwise regression analysis. Stepwise regression is a data exploration technique where variables are entered in the equation one at a time until a prespecified maximum is reached. At each step, the variable that causes the largest increase in predictive ability (as measured by the model's R^2 statistic) is added to the model, then each variable in the model is compared to each variable not in the model to determine whether replacing a variable will yield a higher R^2. The process continues until the "best" one variable model is found, the "best" two variable model is found, and so on. The results of this process were examined for reasonability and used as a starting point for the final step in the model building process.

After using stepwise regression to reduce the number of variables to be included in the model, we returned to a categorical analysis of the variables remaining. We employed a multivariate analysis technique known as Analysis of Variance (ANOVA) to estimate the relationship between student and institutional characteristics and error. During the this part of the analysis some variable categories were refined based on the results of the model (i.e., two categories of a variable that had a similar coefficient were combined). The sections below describe the results and implications of the error prediction models developed during this process.

1. Error Prediction Model for Student Error

Many of the variables that were found to be related to student error during the contingency table analysis were not found to be significant predictors of error in the multivariate model (e.g., AFDC was shown not to relate to error when income was included in the model). Exhibit IV-1 presents the variables that are in the student error prediction model to for independent students and the relative contribution of each level of each variable. Exhibit IV-2 presents the same information for dependent student error prediction model.

Exhibits IV-1 and IV-2 show that income has a strong relationship with student error. Independent students with income over $15,000 are predicted to have student error 18.7 percent more often than independent students with income under $7,500, and dependent students whose parents have income over $25,000 are predicted to have

EXHIBIT IV-1

Error Prediction Equation for Independent Student Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-15.8)

Total Student Income
- $0 - $7,500 (0.0)
- $7,500 - $15,000 (8.5)
- Over $15,000 (18.7)

Tax Form Filed
- Student filed a tax form (7.9)
- Student did not file a tax form (0.0)

Used Estimated Income Tax Data
- Used estimated tax data when filling in application (10.2)
- Did not use estimated tax data when filling in application (0.0)

Student's Untaxed Income
- Student has untaxed income (3.7)
- Student does not have untaxed income (0.0)

Indicator for Pell Award
- Student received Pell Grant (15.7)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (8.9)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (0.2)
- Student was not certified for a Stafford Loan (0.0)

EXHIBIT IV-2

Error Prediction Equation for Dependent Student Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-12.2)

Total Parent Income
- $0 - $15,000 (0.0)
- $15,000 - $25,000 (28.9)
- Over $25,000 (30.8)

Tax Form Filed
- Parent filed a tax form (9.9)
- Parent did not file a tax form (0.0)

Used Estimated Income Tax Data
- Student or parent used estimated tax data when filling in application (12.6)
- Neither student nor parent used estimated tax data when filling in application (0.0)

Net Value of Parent's Real Estate and Other Investments *
- $0 - $500 (0.0)
- Over $500 (0.5)

Indicator for Pell Award
- Student received Pell Grant (15.7)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (10.6)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (5.6)
- Student was not certified for a Stafford Loan (0.0)

* Includes the value (after debts) of investment real estate, cash, savings and checking accounts, and other investments. Does not include investments in homes, businesses, or farms.

student error 30.8 percent more often than dependent students whose parents have less than $15,000 in income. The fact that the model's income coefficients are greater than the coefficients for other variables implies that income is the most important factor associated with error.

The strong effect of income helps explains why many of the other factors initially found to be significantly related to error in the contingency table analysis were not found to be significant in the multivariate model. Most of these other variables were related to income, so that when considered by themselves they partially captured the relationship between income and error. After controlling for income, however, the other variables did not add significantly to the predictive ability of the model.

There are at least two reasons why high income is correlated with error. First, students and parents with high income generally have more complex financial situations and, therefore, generally have more opportunities to make errors in the financial aid application. Low income students and parents are less likely to have significant assets, medical/dental expenses, elementary and secondary tuition expenses, etc. Thus, their application process is simpler and less error prone. Secondly, many low income students and parents have financial need sufficiently high to justify a full award even after errors in their financial aid application are corrected. Thus, errors committed by low income students and parents are less likely to affect the financial aid award.

Many of the other variables found to be significant predictors of error in Exhibits IV-1 and IV-2 are, like income, related to the complexity of the student's financial situation and the financial need of the student. Higher error rates were found for students or parents who filed a tax return, used estimated tax data rather than actual tax data, had untaxed income, or had significant real estate or investment assets.

We also found that independent students who received help in completing their financial aid application were more likely to have an error than those who completed the application on their own or those who had someone else (presumably their parents or financial aid counselors) complete the application for them. However, the effect of this variable on error was not nearly as large as the effect of income and tax return filing variables.

Finally, both the independent and dependent student models take into account the financial aid received by the student. Students receiving Pell and/or Campus-Based aid were predicted to be particularly more error prone than those receiving only Stafford loans, after controlling for differences in income, tax return filing, etc. This result probably occurs because, as shown in Chapter II, Stafford Loan overcertification error occurs less frequently than Pell error and Campus-Based need error.

Exhibit IV-3 summarizes the accuracy of the dependent and independent student models combined. To prepare this exhibit, we first combined the independent and

Error Profile Model for All Students

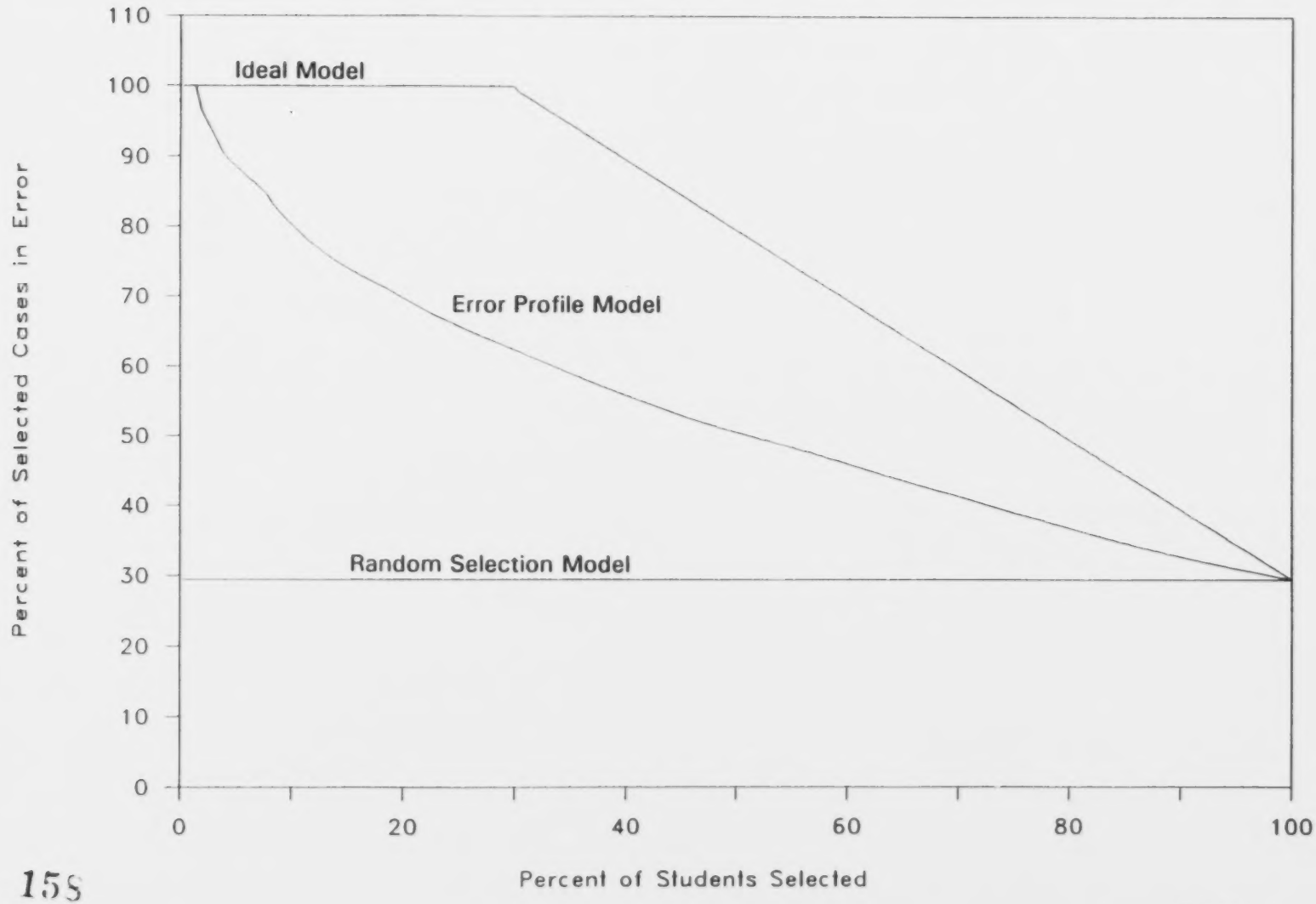


EXHIBIT IV-3

dependent student models and used the combined models to predict the likelihood that each individual student had an error. All students (both dependent and independent combined) were then sorted from highest to lowest predicted error likelihood. We identified the group of students with the highest predicted error likelihood, the group of students with the two highest predicted error likelihoods, the group with the three highest predicted error likelihoods, and so on. For each of these student groups, we placed a point on Exhibit IV-3 based on the cumulative percent of all students represented by the group (the horizontal axis of Exhibit IV-3) and the percent of students in the group that actually had student error (the vertical axis of the exhibit). This line is the middle curve on Exhibit IV-3.

For example, the point on the middle curve in Exhibit IV-3 located at about 30 percent on the horizontal axis and about 60 percent on the vertical axis implies that the model can be used to select a group of 30 percent of the students so that 60 percent of the cases selected have a student error. Similarly, the point on the middle curve at about 50 percent on both the horizontal and vertical axes implies that the model can be used to select a group of 50 percent of the students for which 50 percent have a student error. As the size of the group selected by the model increases, the percentage of the group in error decreases until it reaches to just under 30 percent, the overall student error rate.

The graph indicates that if a small percentage of the students are chosen using this model, the group can be chosen so that all students in the group have error. While this result is true for the sample of students examined during IQCMP, it is probably a by-product of the model fitting procedure used and should not be expected to hold for the student population in general.

The top line in Exhibit IV-3 represents an ideal model. This ideal model would select up to nearly 30 percent of the students in such a way that each selected student has a student error (represented by the horizontal line at 100 percent). If more than 30 percent of all students are selected, the percentage of the group selected which has a student error will drop in a linear fashion because, after selecting the 30 percent with error, the model will start to select students that did not have an error. If all of the students were selected, about 30 percent of the group will have student error.

The horizontal line at just under 30 percent represents the percentage of students in error that would be selected by a random selection model. This line represent a model that has no predictive ability.

2. Error Prediction Model for Institutional Errors

As was expected from the results of the contingency table analysis, few variables were related to institutional error. The final error prediction model for institutional errors

includes only the variables shown in Exhibit IV-4.

As with the analysis of student error, Exhibit IV-4 shows that institutional error is in large part related to the financial aid received by the student. For example, students receiving Campus-Based aid are predicted to be nearly 19 percent more likely to have an institutional error than nonrecipients. This is to be expected because institutional error for Campus-Based need was much higher than either Stafford Loan overcertification error or Pell award error. The relative order of the effects of awards received in the model (Campus-Based higher than Stafford Loan, and Stafford Loan higher than Pell) is identical to the order of institutional error rates among the three programs.

Exhibit IV-4 also shows that students attending proprietary institutions or attending institutions that do not recheck institutional records for the required documentation are more likely to have institutional error. Students attending 4-year baccalaureate or graduate degree-granting programs were only slightly less likely to have an institutional error than those attending other institutions.

Exhibit IV-5 presents a graph of the performance of the selection model for institutional error. As with Exhibit IV-5, the top line on the exhibit represents a perfect selection model and the bottom line on the exhibit represents a model with no predictive ability. The curve between these two lines is the result of selecting

EXHIBIT IV-4

Error Prediction Model for Institutional Characteristics

Includes Relative Contribution to Error Probability (in percent)

Intercept (-2.3)

Institution Control
- Public or Private (0.0)
- Proprietary (8.0)

Institution Type
- 0-4 Year Program (2.9)
- 4 Year Baccalaureate and Graduate Programs (0.0)

Method used to re-check files for documentation
- Automated system (0.0)
- All manual systems (2.7)
- Do not re-check (8.6)

Indicator for Pell Award
- Student received Pell Grant (3.2)
- Student did not receive Pell Grant (0.0)

Indicator for Campus-Based Award
- Student received Campus-Based Award (18.7)
- Student did not receive a Campus-Based Award (0.0)

Indicator for Stafford Loan
- Student was certified for Stafford Loan (7.2)
- Student was not certified for a Stafford Loan (0.0)

Error Profile Model for Institutions

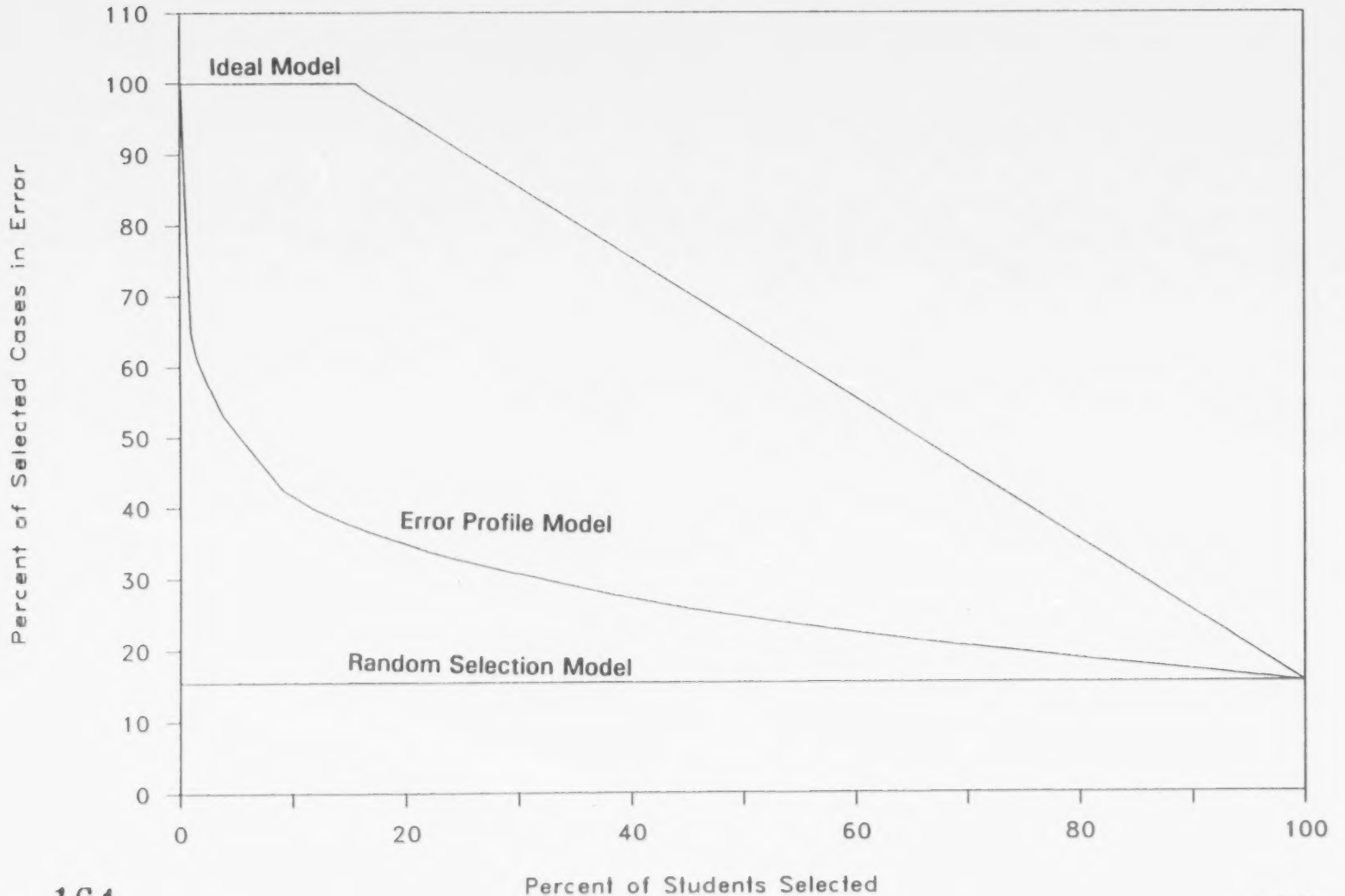


EXHIBIT IV-5

students based on the institutional error prediction model. As shown on the graph, the model significantly improves on the random error model. For example, using this model a group of 10 percent of all students could be selected so that approximately 40 percent of the students had an institutional error. The predictive ability of the model drops to about 30 percent when 30 percent of the students are selected, and reduces approximately linearly beyond that point.

V. EFFECT OF VERIFICATION

Department of Education regulations for Integrated Verification require institutions to verify certain applicant-reported data for a sample of Title IV applicants. In addition, many institutions supplement their Integrated Verification activities with an Institutional Verification program. This section examines the effect of Integrated Verification and Institutional Verification on student error.

A. Integrated Verification Practices

Under Integrated Verification, the central processor, Multiple Data Entry processors, and certain Need Analysis Servicers use edits developed by ED to select Title IV applicants for verification. If more than 30 percent of an institution's Title IV applicants are selected for Integrated Verification, the institution may choose to verify only a subsample of those selected. (The subsample must include at least 30 percent of the institution's Title IV applicants.) Exhibit V-1 summarizes the practices of institutions with regard to the 30 percent rule and the number of Title IV recipients attending those institutions.

Exhibit V-1 shows that most institutions (over 84 percent) verify all ED-selected applicants. Furthermore, because those institutions that do not verify all ED-selected applicants often do not have many more than 30 percent of their applicants selected, we found that only 1.2 percent of the Pell recipients selected for Integrated Verification

Exhibit V-1

Percentage of ED-Selected Students Verified

What percentage of ED-selected students do you verify?	Percent of Institutions	Percent of Students Affected
a. Only 30 percent of all applicants, as required by law	10.0	12.3
b. More than 30 percent of all applicants, but not all ED-selected applicants	5.8	4.1
c. All ED-selected applicants	84.2	83.7
	100.0	100.0

were not verified because of the 30 percent rule. If less than 30 percent of an institution's applicants are selected by the processor, the institution is required to select additional applicants for verification from among those that were not subjected to the edits (provided the institution has applicants that were not subjected to the edits). We did not collect data that would enable us to identify how institutions are affected by this requirement.

When an applicant is selected for Integrated Verification, the institution must collect documentation to verify the following items on the financial aid application:

- Adjusted gross income
- U.S. income taxes paid
- Untaxed income and benefits
- Household size
- Number in college

The Department's Verification Guide provides guidelines for acceptable documentation. The allowable documentation varies depending on the student's situation. For example, if the student has filed a tax return with the IRS, a copy of the student's tax return and Form W-2 should be used to confirm AGI, taxes paid, and certain untaxed income items. If the student will not file a tax return, the student should submit a signed statement stating that a return will not be filed and listing any income received. For household size and number in college, a signed statement is usually used as documentation. However, the Verification Guide states that additional documentation should be collected if the institution has reason to doubt the statement.

Our data collectors reviewed institutional records to identify the documentation used to verify applicant-reported data. Exhibit V-2 summarizes the types of documentation that were found in financial aid files for Pell recipients selected by the edits for Integrated Verification. (We do not have information sufficient to identify non-Pell recipients selected by the edits.) The exhibit categorizes the documentation used for Integrated Verification into four groups:

DOCUMENTATION SOURCES FOR INTEGRATED VERIFICATION

VARIABLE		SOURCE OF DOCUMENTATION				
		Documentation Supplied By External Source[1] (Percent)	Documentation Supplied By Applicant[2] (Percent)	Statement Signed By Applicant[3] (Percent)	No Documentation[4] (Percent)	Total
ADJUSTED GROSS INCOME	Student	3.1	76.4	4.2	16.3	100.0
	Parent	5.3	87.6	2.4	4.7	100.0
U.S. TAXES	Student	2.5	75.1	2.7	19.7	100.0
	Parent	5.6	87.2	1.7	5.5	100.0
WORK INCOME	Student	1.3	58.8	8.2	31.7	100.0
	Parent	2.5	45.6	1.8	50.1	100.0
SPOUSE'S WORK INCOME	Student	0.0	52.4	1.1	46.5	100.0
	Parent	2.3	60.1	0.9	36.7	100.0
SOCIAL SECURITY BENEFITS	Student	0.3	0.0	10.3	89.4	100.0
	Parent	1.5	9.6	9.2	79.7	100.0
CHILD SUPPORT RECEIVED	Student	0.6	0.0	12.9	86.5	100.0
	Parent	0.0	0.0	15.1	84.9	100.0
HOUSEHOLD SIZE	Student	4.3	2.9	64.8	28.0	100.0
	Parent	0.3	7.0	61.4	31.3	100.0
NUMBER IN COLLEGE	Student	15.8	0.0	26.7	57.5	100.0
	Parent	10.8	0.0	36.6	52.6	100.0

1. Certified tax return, statement from employer, institutional records, statement from social service agency.
2. Applicant-provided copy of tax return, W-2 Form, state tax form.
3. Notarized statement, signed statement from parent/student, signed Verification Worksheet.
4. Data collector could not find documentation in the file. Item may not have been reported.

- Documentation Supplied by External Source

  -- For income items (AGI, taxes paid, work income and untaxed income), institutions rarely collected documentation from external sources other than the student or parent (e.g., certified tax returns, signed statement from employer or social service agency). When such documentation was collected, the documentation was almost always a certified copy of the tax return supplied by the IRS. Other types of documentation collected included statements from the IRS that a tax return was not filed; statements by employers regarding work income; statements from the Social Security Administration on social security received by the applicant; and statements from social service agencies for child support received.

  -- For household size and number in college, institutions could sometimes confirm applicant reported data based on their own records (e.g., a number in college of one because the student attended the institution or a number in college of two because the student and a sibling attended the institution). Only in very rare cases did institutions contact other institutions to confirm number in college.

- Documentation Supplied by Applicant

  -- Copies of Federal tax returns were frequently supplied by the applicant to document AGI, taxes paid, and work income. In some cases, the tax return was also used to document social security and household size (presumably based on the number of tax exemptions).

- Statement Signed by Applicant

  -- Institutions frequently documented household size and number in college based on a signed statement from the applicant. In addition, institutions often document child support and social security based on a signed statement. Finally, when the applicant reported zero for income-related items (AGI, taxes paid, work income and untaxed income), institutions would collect a signed statement to support this.

- No Documentation

  -- Our data collectors sometimes could not find documentation in the student aid file to support applicant data. Most often, this occurred

> when the applicant did not report the item (e.g., did not file a tax return or did not have taxed or untaxed income) or because the applicant reported minimum household size or number in college (e.g., household size of one for a single applicant or two for a married applicant, number in college of one, etc.).

Thus, there are two primary sources of documentation used for Integrated Verification: (1) income-related items are most commonly documented by a copy of a tax return supplied by the applicant, and (2) household size and number in college are most commonly documented by a signed statement. Documentation was often not found or not collected for income items that were reported as zero (e.g., no reported untaxed income) and for minimum values for household size and number in college (e.g., when an independent single student reports a household size and number in college of one).

B. Institutional Verification Practices

Many institutions have an Institutional Verification program under which they verify more than the minimum required number of students and/or more than the minimum required data items on the financial aid application. We asked financial aid administrators whether their institution selected additional students for institutional verification, and found that nearly three-quarters did. Exhibit V-3 provides the percent of institutions in the sample that verify applicants not selected by ED, and the percent of sampled students affected by this policy.

The percentage of institutions selecting additional students (72.8 percent) is less than the percentage of students subject to these policies (84.1 percent), because institutions with a

Exhibit V-3

Frequency of Institutional Verification

Do you verify any applicants not selected for integrated verification by ED?	Percent of All Institutions	Percent of Students Affected
a. Yes	72.8	84.1
b. No	27.2	15.9
	100.0	100.0

large number of recipients more frequently select additional students than institutions with fewer recipients.

Exhibit V-4 summarizes the methods used by institutions to select applicants for Institutional Verification. Nearly 43 percent of the institutions that verify additional students stated that they verify all applicants. These institutions tend to be institutions with fewer recipients (the 42.9 percent of institutions represent only 36 percent of the students). One-third of the institutions said they verify applicants when conflicting data is submitted. Nearly 12 percent verify applicant data in error-prone circumstances. Only 3.5 percent use selection criteria, and less than 1.0 percent select applicants at random. Those institutions included in the "other" category frequently used a combination of the other criteria or targeted specific groups of students (e.g., all Pell recipients).

Exhibit V-4

Selection of Applicants for Institutional Verification

How do you determine which applicants to verify?	Percent of Institutions Performing Additional Verification	Percent of Students Subject to Additional Verification
a. Verify all applicants	42.9	36.0
b. Conflicting documentation	33.3	31.8
c. Error-prone circumstances	11.7	12.7
d. Use selection criteria	3.5	8.4
e. Randomly sample applicants	0.7	0.6
f. Other	7.9	10.5
	100.0	100.0

Exhibit V-5 summarizes the procedures used by institutions to verify applicant-reported data. Most institutions (nearly 80 percent) reported they followed the procedures required under Integrated Verification. The institutions that perform additional steps tend to have more recipients than other institutions since they represent 29.1 percent of the recipients and only 15.6 percent of the institutions. Similarly, the 5.4 percent of institutions that perform fewer steps tend to have fewer recipients since they represent only 2.3 percent of the recipients.

Exhibit V-5

Institutional Verification Procedures

Do you follow the procedures for Integrated Verification when you perform Institutional Verification?	Percent of Institutions Performing Additional Institutional Verification	Percent of Students Subject to Additional Institutional Verification
a. Perform same steps	79.0	68.6
b. Perform additional steps	15.6	29.1
c. Perform fewer steps	5.4	2.3
	100.0	100.0

Exhibit V-6 summarizes the data items they verified as a part of Institutional Verification. About two-thirds of the institutions reported that they verify only the data items used in Integrated Verification. Nearly 15 percent of the institutions verify data items when conflicting information is found or on a case-by-case basis. Another 9 percent verify only those items on the tax return. A few institutions verify all data items. Those responding "other" typically used a combination of the above.

Exhibit V-6

Data Items Verified During Integrated Verification

How do you identify the data items to be verified for institution-selected students?		Percent of Institutions Performing Additional Verification	Percent of Students Subject to Additional Verification
a.	Use ED verification items	66.0	59.7
b.	Conflicting data/case-by-case	14.9	13.0
c.	Tax return items	9.0	13.0
d.	Verify all data items	2.6	4.2
e.	Other	7.5	5.7
		100.0	100.0

C. Effect of Verification on Student Error

During visits to sampled institutions, our data collectors recorded the information initially submitted to the institution by each student and the information ultimately used by the institution to determine the student's financial aid award. Differences between these two sets of data are primarily due to verification, although in some instances differences are due to corrections initiated voluntarily by students. We used this data to compute the effect of Integrated and Institutional Verification on student error.

Exhibit V-7 summarizes the error attributable to two sources: (1) incorrect student data in the information initially submitted to institutions, and (2) incorrect student data ultimately used by the institution to determine financial aid awards. The difference between these two error measures is primarily due to the effects of verification. Exhibit V-7 provides error measures for three groups of students: (1) students selected by the processor for verification, (2) students selected by the institution for verification, and (3) students not selected for verification. Students that were selected by the processor for Integrated Verification, but were not verified due to the 30 percent rule, are included in the "Not Verified" group. Exhibit V-7 only includes students who received a Pell award because we did not collect data sufficient to identify the verification status of non-Pell recipients. The exhibit does, however, evaluate the effects of verification on Campus-Based and Stafford Loan awards to students who also received a Pell award.

For Pell awards, Exhibit V-7 shows that the error for students selected by the processor for verification (and verified by the institution) was reduced from an initial level of 33.4 percent of students to a final level of 26.7 percent, a reduction of 6.7 percent. In terms of award amount, the percent of dollars in error was reduced from 12.7 percent to 9.4 percent.

Error in Pell recipients selected for verification by the institution was reduced from 30.9 percent of the students to 20.7 percent of the students, and from 10.7 percent of the award dollars to 5.9 percent of the awards dollars. While these reductions in Pell error

Exhibit V-7

EFFECT OF VERIFICATION ON STUDENT ERROR IN THE TITLE IV PROGRAMS

Award Year 1988-89

PELL RECIPIENTS ONLY[1]

ERROR MEASURE AND TYPE OF SELECTION	SAMPLE SIZE	PERCENT OF RECIPIENTS WITH ERROR			PERCENT OF DOLLARS IN ERROR		
		INITIAL ERROR[2]	FINAL ERROR[3]	CHANGE	INITIAL ERROR[2]	FINAL ERROR[3]	CHANGE
PELL ABSOLUTE ERROR							
PROCESSOR SELECTED	551	33.4	26.7	-6.7	12.7	9.4	-3.3
INSTITUTION SELECTED	260	30.9	20.7	-10.2	10.7	5.9	-4.8
NOT VERIFIED	858	25.8	24.0	-1.8	7.8	6.5	-1.3
CAMPUS BASED ABSOLUTE NEED ERROR							
PROCESSOR SELECTED	274	47.9	33.9	-14.0	5.0	2.7	-2.3
INSTITUTION SELECTED	144	47.8	39.8	-8.0	5.7	3.9	-1.8
NOT VERIFIED	492	39.7	36.1	-3.6	5.5	4.6	-0.9
STAFFORD LOAN OVERCERTIFICATION							
PROCESSOR SELECTED	359	14.8	10.3	-4.5	4.0	2.6	-1.4
INSTITUTION SELECTED	155	14.4	12.9	-1.5	3.6	4.1	0.5
NOT VERFIED	549	10.5	9.3	-1.2	3.8	3.4	-0.4
ARITHMETIC AVERAGE OF ABOVE							
PROCESSOR SELECTED	N/A	32.0	23.6	-8.4	7.2	4.9	-2.3
INSTITUTION SELECTED	N/A	31.0	24.5	-6.5	6.7	4.6	-2.1
NOT VERIFIED	N/A	25.3	23.1	-2.2	5.7	4.8	-0.9

1. Recipients who did not receive a Pell are excluded. Total sample 1,669 recipients.
2. Error in applicant's initial submission to the institution.
3. Error in final applicant data used by the institution to calculate award.

for institution-selected cases exceeded those obtained for ED-selected cases, the reductions in Campus-Based and Stafford Loan error for Pell recipients selected for Institutional Verification were less than those for ED-selected cases. Averaged across the three programs, processor-selected cases had a greater reduction in error than institution-selected cases.

Exhibit V-8 presents a table similar to Exhibit V-7 which considers only errors in those student items that must be verified through Integrated Verification. While lower in magnitude, the values of initial error, final error, and error removed in Exhibit V-8 are similar to those in Exhibit V-7.

Exhibit V-9 compares Pell error removed through verification for household size and number in college (which are most commonly documented by a signed statement) to that of AGI and U.S. taxes paid (which are most commonly documented based on an applicant-provided copy of a tax return). The exhibit tabulates the number of times that the value initially submitted by the applicant would cause a Pell award error and the number of times that the final verified value used by the institution would cause a Pell award error. Unweighted sample totals are used because the sample size is too small to make statistically reliable generalizations to the population. The results strongly suggest that verification based on signed statements does little to reduce error, since only five of the 103 initial errors in household size and number in college are corrected through

Exhibit V-8

EFFECT OF VERIFICATION ON STUDENT ERROR IN THE TITLE IV PROGRAMS

Award Year 1988-89

ERROR FROM VERIFICATION ITEMS ONLY [1]

PELL RECIPIENTS ONLY [2]

ERROR MEASURE AND TYPE OF SELECTION	SAMPLE SIZE	PERCENT OF RECIPIENTS WITH ERROR			PERCENT OF DOLLARS IN ERROR		
		INITIAL ERROR [3]	FINAL ERROR [4]	CHANGE	INITIAL ERROR [3]	FINAL ERROR [4]	CHANGE
PELL ABSOLUTE ERROR							
PROCESSOR SELECTED	548	25.1	19.7	-5.4	8.0	6.4	-1.6
INSTITUTION SELECTED	262	18.3	13.8	-4.5	5.6	4.7	-0.9
NOT VERIFIED	860	19.2	18.3	-0.9	5.5	5.0	-0.5
CAMPUS BASED ABSOLUTE NEED ERROR							
PROCESSOR SELECTED	271	28.4	20.0	-4.1	4.1	2.4	-1.7
INSTITUTION SELECTED	146	33.0	22.5	-4.5	4.5	3.9	-0.6
NOT VERIFIED	495	27.1	24.6	-2.5	4.4	3.5	-0.9
STAFFORD LOAN OVERCERTIFICATION							
PROCESSOR SELECTED	360	18.7	14.1	-4.6	4.8	3.3	-1.5
INSTITUTION SELECTED	158	12.4	8.0	-4.4	4.7	4.0	-0.7
NOT VERIFIED	560	12.7	12.2	-0.4	3.6	3.7	0.1
ARITHMETIC AVERAGE OF ABOVE							
PROCESSOR SELECTED	N/A	24.1	17.9	-6.2	5.6	4.0	-1.6
INSTITUTION SELECTED	N/A	21.2	14.8	-6.4	4.9	4.2	-0.7
NOT VERIFIED	N/A	19.7	18.4	-1.3	4.5	4.1	-0.4

1. Includes errors due to AGI, work income, taxes paid, household size, number in college, social security benefits, child support received, and other untaxed income.
2. Recipients who did not receive a Pell are excluded. Total sample 1,669 recipients.
3. Error in applicant's initial submission to the institution.
4. Error in final applicant data used by the institution to calculate award.

Exhibit V-9

Pell Student Error Removed Through Verification

Processor-Selected Recipients Only

(541 Sampled Recipients)

Variable	Number of Recipients With Error: Initial Error	Final Error	Change
Parent Household Size	51	50	-1
Student Household Size	12	12	-0
Parent No. in College	32	29	-3
Student No. in College	8	7	-1
Total	103	98	-5
Parent Adj. Gross Inc.	20	5	-15
Student Adj. Gross Inc.	13	9	-4
Parent U.S. Taxes	26	9	-17
Student U.S. Taxes	12	8	-4
Total	71	31	-40

verification. (Signed statements do protect the institution from liabilities, because the school followed the regulatory process, even though the process appears to have a minimal effect on correcting error.) In contrast, 40 of the 71 initial errors in AGI and U.S. taxes paid are corrected through verification, indicating that verification based on copies of tax returns is an effective tool for reducing student error.

D. Targeting of Verification

As shown previously in Exhibit V-7, the initial error among students selected by processors for Integrated Verification did not differ substantially from that of students not selected for verification. We therefore examined whether verification could be better targeted towards students with errors in the data elements verified through Integrated Verification.

We created a database containing the values initially reported to institutions by students and the error attributable to the items verified during Integrated Verification. We then tested regression models to predict whether or not an error occurred based on the applicant-reported data. We found that two variables -- dependency status and AGI -- were significant predictors of error. While multivariate models including additional variables were statistically significant, they produced only minimal improvements in predictive ability. Exhibit V-10 summarizes the results of our analysis.

Exhibit V-10 shows that dependent students are nearly three times as likely as

Exhibit V-10

VERIFICATION COULD BE BETTER TARGETED TOWARDS STUDENTS WITH ERROR

A. Dependent Students

Parent AGI	Percent of Students	Percent With Pell Error[1]	Average Error Per Recipient With Error	Percent Selected By Processor
Less Than 5,000	20.4	10.4	419	34.8
5,001 to 10,000	11.5	16.4	464	48.7
10,001 to 15,000	13.6	30.8	320	38.0
15,001 to 20,000	14.2	44.4	380	49.1
20,001 to 35,000	30.7	52.7	446	36.2
Over 35,000	9.9	66.6	324	26.7
All Dependent	100.0	37.1	399	38.6

B. Independent Students

Student AGI	Percent of Students	Percent With Pell Error[1]	Average Error Per Recipient With Error	Percent Selected By Processor
Less Than 5,000	43.2	4.7	856	24.5
5,000 to 10,000	26.7	7.9	437	23.2
10,001 to 15,000	11.9	22.3	636	28.4
Over 15,000	18.2	34.4	285	54.0
All Independent	100.0	12.8	470	30.2

1 Pell error attributable to initial submission for student data elements verified .

independent students to have an error (37.1 percent versus 12.8 percent). However, the processing edits select dependent students for Integrated Verification only slightly more frequently than independent students (38.6 percent versus 30.2 percent).

Exhibit V-10 also shows that applicants with high AGI are much more likely to have an error than those with low AGI. For dependent students, the error rate among parents with AGI over $35,000 is more than six times as great as that among parents with AGI less than $5,000 (66.6 percent versus 10.4 percent). Similarly, for independent students, the error rate among students with AGI over $15,000 is more than seven times as great as those with AGI less than $5,000 (34.4 percent versus 4.7 percent). The processing edits select dependent students with high AGI less frequently than those with low AGI. While independent students with AGI over $15,000 are selected more frequently than other independent students, the edits still select nearly one-quarter of the independent students with AGI less than $5,000 and between $5,001 and $10,000 -- the groups with the smallest error rates.

These findings suggest that ED processing edits could be improved by targeting dependent students more frequently than independent students and targeting high AGI students and parents more frequently than low AGI students and parents. Our database only includes Title IV recipients, and while the selection system is applied to all applicants, it is not possible for us to fully evaluate the effectiveness of the selection system.

VI. SIMPLIFICATION OF THE PELL GRANT PROGRAM

Simplification of the Title IV Student Financial Aid Delivery Systems has long been a concern of many members of the student financial aid community. Over the years, ED and other organizations have developed alternative proposals to simplify the delivery systems in order to reduce processing costs, burden, and error. Prior quality control studies have continuously recommended that simplification of the delivery process might help reduce systemic errors while producing minimal impact on program payments.

This chapter describes our analysis of a proposal by the National Association of Student Financial Aid Administrators' (NASFAA's) Need Analysis Standards Committee (NASC) to simplify the Title IV financial aid formulas. We modeled the effect of the proposed changes to the Pell Grant Program because the effect of the changes could be easily traced to changes in award amounts, which is not the case for the Campus-Based and Stafford Loan programs.

This section is organized as follows:

A. Description of Modifications to the Pell Grant Formula
B. Effects of Modifications on Dependency Status
C. Effects of Modifications on Pell Grant Awards

A. Description of Modifications to the Pell Grant Formula

We modeled a total of eight individual changes to the Pell Grant Program:

1. Revising the definition of dependency status
2. Eliminating medical and dental expenses from the formula
3. Eliminating elementary and secondary tuition from the formula
4. Eliminating the simplified formula
5. Eliminating work income from the formula
6. Making AFDC recipients automatically eligible for a full award
7. Eliminating assets from the formula for lower income families
8. Using a calculated value of U.S. taxes paid rather than the reported figure

Below we will describe how we modified the necessary components of the Pell Grant Formula to model these changes.

1. Revising the Definition of Dependency Status

The definition of dependency status used for determining Pell Grants in 1988-89 included many complicated questions. In addition, many of the answers to these questions were hard to verify. In order to streamline the determination of dependency status, NASC developed an alternative definition of dependency status under which a recipient was considered independent if they met at least one of the following criteria:

- Were born before January 1, 1965 (for the 1988-89 award year)
- Were an orphan or ward of the court
- Had legal dependents other than a spouse
- Were a graduate or professional student
- Were a veteran of the U.S. Armed Forces

Any recipient not meeting at least one of these criteria is considered dependent under the revised definition.

2. Eliminating the Offset for Medical and Dental Expenses from the Pell Grant Formula

Under the 1988-89 Pell Grant formula, total income was offset by the portion of medical and dental expenses that exceeded 20 percent of effective family income (total income, minus U.S taxes paid, minus the state tax allowance). Because a relatively small number of recipients qualify for the medical/dental expense offset, many members of the financial aid community view medical/dental expenses as a data item that could be eliminated from the Pell Grant formula without significantly affecting the distribution of financial aid. For the alternative formula, we set the offset to $0 for all recipients.

3. Eliminating the Offset for Elementary and Secondary Tuition from the Pell Grant Formula

Under the 1988-89 Pell Grant formula there was an offset of up to $3,450 for each family member for whom the parents paid elementary or secondary tuition. Like the

offset for medical/dental expenses, a relatively small number of recipients qualify for the tuition offset. Elementary/secondary tuition paid, therefore, has been seen as a data item that could be eliminated from the Pell Grant formula. For the alternative formula, we set the offset to $0 for all recipients.

4. Eliminating the Simplified Formula

The 1988-89 Pell Grant formula allowed for the Pell Grant to be calculated using a shortened formula in certain instances. This shortened formula could be used by recipients that: (1) did not have total income (parents and student/spouse) of $15,000 or more, and (2) did not file an IRS 1040 long form. By making the general application simpler, the need for a simplified formula could be eliminated. Any special circumstances could still be handled through professional judgment governed by appropriate Federal guidelines. For the alternative formula, we eliminated this secondary formula.

5. Eliminating Work Income from the Pell Grant Formula

The 1988-89 Pell Grant formula used income earned from work in two instances: (1) to calculate total income when the student or parents did not file an income tax return, and (2) to calculate an employment expense offset. The distinction between work income and non-work income is confused by many recipients. Furthermore, for many recipients, there is little difference between work income and AGI. For these reasons, it has been discussed that work income could be eliminated from the Pell

Grant formula. The alternative formula eliminated work income from the formula by setting work income to $0. We modified the calculation of the employment expense offset to use AGI, not work income. The employment expense offset was calculated by assuming that AGI was equal to work income, and that, if the recipient (or his parents) were married, their AGI was split evenly between husband and wife. The maximum offset of $1,500 was maintained in the alternative formula.

6. Making AFDC Recipients Automatically Eligible for a Full Award

Under the 1988-89 Pell Grant formula, AFDC recipients were not treated any differently than non-AFDC recipients. Because students and parents must demonstrate significant financial need in order to receive AFDC, there has been discussion among members of the financial aid community that the financial aid delivery system could streamline the application process for AFDC recipients. The alternative formula gave anyone who received AFDC benefits (student or parent) an SAI of 0. This modification meant that they were eligible for the maximum Pell Grant given their enrollment status and cost of attendance.

7. Eliminating Assets from Lower Income Families

Under the 1988-89 Pell Grant formula, assets for all students and parents were analyzed and they were expected to contribute a portion of the available assets. For families with relatively low total incomes (less than $25,000), it is reasonable to assume that available assets are usually small or non-existent. For the alternative

formula, we set a family's net available assets to $0 if they met both of the following conditions: (1) they filed a 1987 tax return on Form 1040A or Form 1040EZ[1], and (2) they had less than $25,000 in total income.

8. Using a Calculated Value of U.S. Taxes Paid Rather Than the Reported Figure

The 1988-89 Pell Grant formula used for U.S. taxes paid the amount reported on the application for financial aid. A common error on the financial aid application is to report taxes withheld rather than taxes paid. Because of this, there has been discussion about calculating U.S. taxes paid based on the reported filing status and reported number of exemptions. For the alternative model, we calculated U.S. taxes for all recipients and parents based on filing status, number of exemptions, and adjusted gross income. The calculated amount of taxes paid will not always equal the true amount, because the calculated amount cannot take into account the effect of itemized deductions and tax credits on taxes paid.

B. Effects of Modifications on Dependency Status

This section describes the effect of changing the definition of dependency status, while Section C describes the effect of the other seven changes as well as the effect of all changes taken together. We describe below what types of recipients are affected most by the alternative definition of dependency status and how the alternative definition can be modified to reduce the number of changes in dependency status.

---

[1] Taxpayers who itemize deductions (e.g., to take the mortgage interest deduction) or who have certain income sources, adjustments to income, additional taxes, or tax credits must file their tax return on Form 1040, rather than on Form 1040A or Form 1040EZ.

1. Effect of Alternative Definition of Dependency Status

To estimate the effect of the alternative definition of dependency status, we determined the dependency status for each recipient using the alternative definition, and compared this dependency status to the dependency status determined using the current formula. Exhibit VI-1 presents a summary of the results of this comparison.

Exhibit VI-1

Effects on Dependency Status of Modifying the Dependency Status Definition

Current Formula	Alternate Formula	Percent of Students	Median Student Age	Median Student Income
Dep.	Dep.	49.6	20	$1,836
Dep.	Ind.	0.3	23	$4,124
Ind.	Dep.	3.9	22	$6,001
Ind.	Ind.	46.2	29	$8,536
All	All	100.0	22	$3,889

As shown, nearly 96 percent of our sampled recipients had the same dependency status under the current and alternative definitions. Only 0.3 percent of recipients were dependent under the current formula and independent under the alternative formula, and 3.9 percent were independent under the current formula and dependent under the alternative formula.

All of the recipients in our sample who switched from Dependent to Independent were graduate students who were claimed as dependents by their parents for tax purposes (these recipients represent only 6.9 percent of all graduate students analyzed).

The recipients who switched from Independent to Dependent were students who did not meet any of the five criteria under the alternative definition but were Independent under the current formula. As is indicated in the fourth column of Exhibit VI-2, 31.5 percent of all switchers were married students who were classified as dependent under the alternative definition. Of the married students who would be classified as dependent under the alternate definition, 81.4 percent were classified as independent under the current definition. These students had a higher median income than students who were not married, including those unmarried students classified as independent under the alternative definition.

Because of the effect on married students, it may be appropriate to modify the alternative definition to include married students as Independents. This modification

would have a net effect of reducing changes in dependency status. This reduction would occur because, as shown in Exhibit VI-2, of the married students who were dependent under the alternative formula, 81.4 percent and 18.6 percent were independent and dependent respectively under the current formula. Thus, 81.4 percent of these recipients switch status and 18.6 percent do not. If the alternative definition included married students as Independents, 18.6 percent of this group would switch status and 81.4 percent would not. This would reduce the overall rate of dependency status switchers from 4.2 percent to 3.2 percent.

Exhibit VI-2

Dependency Status Switchers:
Marital Status as a Possible Factor
in Determining Dependency Status

			STUDENTS CHANGING STATUS		
MARITAL STATUS	ALTERNATE FORMULA	PERCENT[1] CHANGING STATUS	PERCENT OF TOTAL	MEDIAN STUDENT AGE	MEDIAN STUDENT INCOME
Not Married	Dep.	4.9	60.7	22	$5,787
Not Married	Ind.	1.1	7.8	23	$4,124
Married	Dep.	81.4	31.5	21	$8,921
Married	Ind.	0.0	0.0	N/A	N/A

1 4.2 percent of all students changed dependency status

2. Conclusions

It is clear that the alternative definition of an Independent student is simpler than the current definition. Relative to the current definition, the alternative definition requires fewer questions, does not involve complicated branching, and uses data items for which it is easy to obtain verification. Including married students in the alternative definition could be accomplished by changing the wording on one of the five questions from "Do you have legal dependents other than a spouse?" to "Do you have legal dependents?"

C. Effects of the Modifications on Pell Grant Awards

This section describes the effects that the modifications mentioned previously had on Pell award amounts. We first describe the effect on Pell awards when all of the changes were implemented simultaneously, and then describe the effect on awards of implementing each change by itself. All of the results discussed below are summarized in Exhibit VI-3.

To evaluate the effect of the alternative formula, we calculated Pell awards using the alternative formula and compared them to Pell awards calculated using the current formula. Our analysis had the following limitations:

- We could not calculate alternative awards for most of the recipients who switched from independent to dependent because we did not have the parent information necessary to calculate Pell award amounts. Fortunately, these dependency status switchers represent only a small portion (4.2 percent) of the recipients.
- Recipients categorized as dislocated workers or displaced homemakers were excluded from our analysis because their award would be

Percent of Cases with Differences Between Current and Alternative Formula

	Award Decreased				No Change	Award Increased			
	-651	-650 -451	-450 -251	-250 -51	-50 50	51 250	251 450	451 650	651+
Assets	0.0	0.0	0.0	0.0	98.4	1.1	0.4	0.0	0.2
Elem/Sec Tuition	0.1	0.0	0.7	1.7	97.4	0.0	0.0	0.0	0.0
AFDC	0.0	0.0	0.0	0.0	99.9	0.0	0.1	0.0	0.0
Work Income	0.0	0.0	0.0	0.2	98.2	1.2	0.2	0.0	0.1
Taxes Paid	0.3	0.4	0.4	3.2	93.3	2.3	0.2	0.1	0.0
Medical/ Dental	0.5	0.4	0.3	2.0	96.8	0.0	0.0	0.0	0.0
NASC Formula	0.7	0.5	1.1	5.1	79.5	11.0	1.6	0.3	0.4

determined through professional judgment under the alternative formula. It was not possible to accurately model how these recipients would have been treated through professional judgment. As with dependency status switchers, dislocated workers and displaced homemakers represent only a small portion of the recipients.

1. Changes in Pell Grant Awards

When all eight of the modifications were implemented, 79.5 percent of the Pell Grant recipients in our data base had a change in their Pell Grant of $50 or less, and over 95 percent had a change of $250 or less. More Pell Grant recipients had an increase in their award under the alternative formula than had a decrease in their award (13.3 percent had an increase in their award of at least $51 while 7.4 percent had a decrease in their Pell award of at least $51).

The average award for our sample was $1,338 using the current formula and $1,339 using the alternate formula. For those recipients whose award changed, the average decrease ($270) was almost 65 percent larger than the average increase ($164). The average absolute change in awards, for recipients whose award changed, was $197. In addition, as shown in Exhibit VI-4, nearly 97 percent of recipients with awards over $2,000 under the current formula also had awards over $2,000 under the alternative formula. Thus, very few of the neediest recipients had a change in their award as a result of the alternative formula.

Using a calculated rather than reported amount for U.S. taxes paid affected a higher percentage of Pell Grant recipients than any other single change modeled. When this change was implemented just over 7 percent of the recipients had their award change

Exhibit VI-4

Distribution of Pell Awards
Under Current and Alternative SAI Formulas
(Number of Sampled Recipients)

AWARD UNDER ALTERNATE FORMULA	AWARD UNDER CURRENT FORMULA					
	$500 OR LESS	$501 - $1,000	$1,001- $1,500	1,501- $2,000	OVER $2,000	ALL
$500 or Less	155	13	2	1	1	172
$501 - $1,000	15	245	10	1	1	272
$1,001 - $1,500	2	26	332	5	1	366
$1,501 - $2,000	0	1	13	273	10	297
Over $2,000	0	0	2	15	380	397
All	172	285	359	295	393	1,504

by more than $50. The percentage of recipients whose award decreased by more than $50 (4.3 percent) was slightly higher than the percentage of recipients whose award increased by more than $50 (2.6 percent). There are two reasons a recipient's award amount could have changed:

- The recipient reported the correct amount of taxes paid and, because the calculated amount cannot take into account tax credits, the calculated amount was incorrect.

- The recipient reported the incorrect amount of taxes paid (a common mistake is reporting taxes withheld) and the calculated amount was different than the reported amount.

When the Pell formula was modified for AFDC recipients, eliminating assets for low income recipients, and eliminating work income, there were very few changes in awards. For each of these three changes, less than 2 percent of recipients had their Pell award change by more than $50. In addition, for each change, a higher number of recipients had their awards increase than decrease.

The modifications for medical/dental expenses and elementary and secondary tuition had similar effects on Pell Awards. These changes decreased awards for 2.6 percent (elementary and secondary tuition) and 3.2 percent (medical/dental expenses) of recipients. No awards were increased.

It is important to note that the percentage of students whose award changed when all modifications were modeled (20.5 percent of recipients) was higher than the sum of the percentages of recipients whose award changed under each individual modification. This pattern could occur for several reasons, including:

- The effect of the changes is cumulative. That is, a recipient's award could have decreased by $40 when medical/dental expenses was eliminated and by $40 when elementary and secondary tuition was eliminated. This would have lead to changes of $50 or less under the individual changes but a combined change of more than $50.
- For each recipient who switched dependency status, the award calculated when all changes were implemented used one dependency status, while the awards calculated for each individual change used a different dependency status.

2. Conclusions

It is clear from the results presented that simplification of the Pell Grant formula can be accomplished with relatively minor effects on most recipients and on aggregate awards. However, even changes that have only small effects on awards imply a series of equity issues which go beyond the scope of this study. For example, while relatively few recipients are affected by eliminating an allowance for elementary and secondary tuition, does the Department want to treat a family with elementary and secondary tuition expenses the same as a family with identical circumstances except that they do not have elementary and secondary tuition expenses? Only the Congress in conjunction with the Department and the financial aid community can weigh the equity issues inherent in ultimately adopting a package of changes to simplify the delivery system.

ED, Congress, and the financial aid community agree that there is a need for simplification of the financial aid delivery system. The current complexity of the financial aid delivery system is a result of many previous attempts to address error and equity through changes to the financial aid formula. The result of this process is a formula that is burdened by the need to account for issues that affect only a small handful of applicants. A simplified process that handles the majority of situations, coupled with the use of professional judgement within guidelines provided by ED, may be an answer to the growing complexity of the system.

VII. CORRECTIVE ACTIONS

A. Introduction

This section presents corrective actions for ED to consider in its efforts to reduce error in the Title IV student financial assistance programs. These recommendations are based on both the findings of the IQCMP and on recognized management practices used by other organizations within and outside of the Federal government. Because the purpose of IQCMP was to examine error in the Title IV programs, most of the following suggested improvements are aimed at reducing error.

1. Framework for Corrective Actions

Corrective actions with regard to the Title IV delivery system should be aimed towards increasing the quality of services provided by ED. There are three distinct groups served by ED: students who are potential recipients of Title IV aid (and their families), educational institutions that participate in the program, and taxpayers who pay for the program. Each of these three groups has specific goals that must be addressed by ED. ED can increase service to students and institutions by increasing the number of services available, decreasing turn-around time, providing clearer and more in-depth information, and reducing the burden involved in the financial aid system. At the same time, ED needs to ensure that taxpayer money is being spent correctly (i.e., with a minimum of errors), equitably, and in a cost-effective manner.

Because of the complex nature of the student aid delivery system, errors in awarding student financial assistance will never be entirely eliminated. Some reduction in error

rates could be achieved by implementing minor modifications to the delivery system (e.g., improving instructions, redesigning forms, etc), but many of these "quick fixes" have been tried in the past with limited success. ED may need to consider more sweeping changes in the financial aid delivery system, such as simplification of the financial aid formula, in order to achieve major reductions in error rates.

2. Causes of Error

Both students and institutions have motives to maximize the student's Federal aid awards. Students have the obvious motivation of reducing the financial burden of the costs of postsecondary education. Institutions also benefit from Federal student aid, either through reduced demands on institutionally funded financial aid or through increased enrollment by financially needy students. These pressures to increase Federal aid awards may lead to intentional errors. Intentional errors include:

- Deliberate misstatements of fact,
- Stretching the truth to a more favorable outcome, and
- Intentional failure to report a change in the student's situation.

Not all of the error in the Title IV programs can be attributed to intentional errors. Most students and institutions are honest and intend to supply complete and accurate information, but mistakes are still made. Unintentional mistakes can effect awards either in a random fashion (e.g., an unintentional error in home value could increase or decrease the award) or in one direction (e.g., forgetting to report untaxed income will increase the award). Overall, unintentional mistakes probably tend to increase the student award.

Unintentional errors include:

- Confusion over policies and procedures (e.g., failure to report changes in situation),
- Incorrect estimation of data elements (e.g., an estimate of home value made without an appraisal),
- Incorrect calculations performed (e.g., an addition error is made when calculating other financial aid awarded), or
- Confusion caused by timing problems (e.g., failure to include an outside award that was made after the Federal aid was packaged).

Although ED has uncovered several cases of fraud in recent years, it is nearly impossible for a study such as IQCMP to differentiate between the effects of intentional and unintentional errors. We uncovered only one case that was clearly an example of fraud, that of a student's submission of a falsified application for financial aid. For this reason, the corrective actions presented in this report are designed to reduce both intentional and unintentional error.

3. Corrective Action Strategies

Five different strategies for reducing error in the student assistance programs are discussed in this chapter. These five strategies are intended to cover both intentional and unintentional errors committed by students and institutions. The five strategies include:

1. Improve communications with students and institutions -- This corrective action strategy, directed only at unintentional errors, has been the focus of many past corrective actions (e.g., clarification of instructions about household size was a recommendation of the Stage II study). This strategy would be relatively easy for ED to implement, but would probably not result in large reductions in error.

2. Remove opportunities for error -- This corrective action strategy, which is targeted at intentional and unintentional institutional and student errors, should help to prevent errors before they occur. Simplification of the financial aid formula would be part of this strategy, since there are less items in a simplified formula to be in error. This strategy requires the most changes to the delivery system, but is also likely to be the most successful in making significant reductions in error rates.

3. Provide disincentives for noncompliance -- This corrective action strategy should reduce intentional errors since its goal is to increase the perception of likelihood of being caught and punished. However, this strategy may also reduce unintentional error by making applicants more careful when completing their applications. An example of a corrective action using this strategy would be to impose more frequent fines on students who provide incorrect information on their application.

4. Identify and correct errors after occurrence -- This corrective action strategy is already being employed by ED and includes the Integrated Verification program and program reviews. This strategy helps decrease intentional and unintentional errors.

5. Enlist educational institutions in efforts to reduce error -- This corrective action strategy has already been implemented by ED as the Institutional Quality Control Pilot Project. Many institutions, inside and outside of the Pilot project, already have commitments to quality control but may need closer guidance from ED.

These corrective action strategies, and proposed corrective actions, are discussed below.

B. Improve Communications With Students and Institutions

This corrective action strategy involves clarifying instructions to both students and institutions, providing students with more information on policies and procedures dealing with financial aid, and correcting incorrect perceptions on the part of students and institutions.

This corrective action strategy is relatively easy and low-cost to implement. Only minor changes in current ED procedures are involved. These corrective actions should be undertaken in order to increase quality in the Title IV programs. However, because of their nature, it is likely that the changes proposed under this strategy will have only small effects on error in awarding aid.

Three specific corrective actions that fall within the overall strategy of improving communications with students and institutions are discussed below.

1. Clarify Definitions of Student Reported Items

This corrective action involves rewriting the definitions of items on the financial aid application to remove ambiguity. For example, the definition of household size on the 1988-89 Application for Federal Student Aid reads, "The number of people that you will support between July 1, 1988 and June 30, 1989. Include yourself and your spouse. Include your children if they get more than half of their support from you. Include other people only if they now live with and get more than half of their support from you and will continue to get this support between July 1, 1988 and June 30, 1989."

The word "support" is ambiguous and could be interpreted as including only the necessities of food, clothing, and housing or as including luxuries such as a new car and a European vacation. The applicant is free to interpret "support" to his or her benefit. The definition could be improved as in the example on the next page.

Although the word support is defined in the application for 1990-91 to be "money, gifts, loans, housing, food, clothes, car, medical and dental care, payment of college costs, etc.", this definition appears only in the section on parents' household information and will not be read by independent students. The definition could be improved as in the following example.

Example of a Revised Definition for Student's Household Size

The number of people that you will support between July 1, 1988 and June 30, 1989. Include yourself and your spouse. Include your children if you provide more than half of the money for food, clothing, shelter, medical expenses, transportation, and education. Include other people only if they now live with you and receive more than half of the money for these items from you and will continue to receive this support between July 1, 1988 and June 30, 1989.

The definition of displaced homemaker status for parents of dependent students is also vague. The 1988-89 Application for Federal Student Aid instructs the applicant as follows:

> "Check 'Yes' if either of your parents meets **all** of the following descriptions for a displaced homemaker:
>
> - your parent has not worked in the labor force for a substantial number of years (e.g., approximately five years or more) but has, during those years, worked in the home providing unpaid services for family members;
> - your parent has been dependent on public assistance or on the income

> of another family member but is no longer receiving that income, or your parent is receiving public assistance because of dependent children in the home; **and**
>
> - your parent is unemployed or underemployed and is experiencing difficulty in obtaining or upgrading employment."

Although it is clear that the applicant's parent must meet all three conditions to be considered a displaced homemaker, the conditions themselves contain obscure language and may confuse the applicant. For example, the first condition requires the parent to have been out of the labor force for a "substantial" number of years, and then defines this period as "approximately five years or more". Specifying a fixed period of unemployment will reduce confusion on the applicant's part which will lead to a reduction in unintentional errors.

The second condition requires parent dependence on public assistance, but fails to define what constitutes public assistance or what it means to be dependent upon public assistance. We suggest a reduction in unintentional errors can be attained by listing examples of eligible public assistance programs (e.g., AFDC, welfare, Social Security, etc.) and defining dependence as a fraction of family income (e.g., "dependent" means that at least 50 percent of available family resources comes from public assistance).

Finally, the third condition refers to "unemployment" which is defined in the instructions as follows:

> "Unemployment" means not working this week but being available for work and having made specific efforts to get a job sometime during the last four weeks.

In this context, "specific efforts" may include anything from glancing at the classified adds to listing with a job placement agency. "Specific efforts" should be further defined according to the standards implemented by the Bureau of Labor Statistics. BLS defines "specific efforts" to obtain employment as follows:

- place or answer classified advertisements in the newspaper
- contact a potential employer directly
- contact friends or relatives about obtaining employment, or
- contact a public or private employment agency.

Specifying precise definitions throughout the instructions will reduce applicant confusion and thus reduce the opportunity for unintentional error. Before the financial aid application is released, it should be reviewed by a trained editor. Focus group sessions with student and parents could be used to obtain additional input on the clarity of the questions and instructions.

2. Clarify Procedures For Reporting Changes in Student Situation

On the second page of the financial aid application the student is told that if his or her situation changes pertaining to questions 3-3 and 3-4 (parent's household size and number in college) or Step 4 (student's household size and number in college) to "wait until you receive your SAR and then see your financial aid administrator." This wording seems to indicate that notifying the financial aid administrator is optional. To address this issue, the following sentence could be added to the application by the questions about household size and number in college: "NOTE: If your situation

changes before you receive an award, you **must** notify your financial aid administrator".

3. Clarify Regulations Regarding the Student Assistance Programs

During IQCMP, two areas were uncovered in which ED has given the institutions unclear or erroneous instructions about the policies involving the Title IV programs.

These two areas involved Stafford Loan undercertifications and the worksheets used by the institutions to calculate family contributions.

Under the original analysis plan proposed for IQCMP, undercertifications in the Stafford Loan program were to be included as errors. However, information received from institutions during the data collection phase and during follow-up conversations, indicated that there was a considerable amount of confusion over whether a student who requested a loan smaller than the amount for which he or she was eligible should be certified for the smaller loan or for the full amount. Queries to ED produced the same ambiguous responses, and the matter is not discussed in the financial aid handbooks. Clearly, ED needs to clarify its policy regarding Stafford Loan undercertifications and notify the institutions.

The Pell Grant and Congressional Methodology handbooks contain worksheets that may be used by the institutions to calculate the student's contribution to the cost of education. These worksheets are used either to recalculate a contribution after changing data or to estimate contributions until the official SAR is received. Since

the family contribution is an essential ingredient in calculating student awards, it is very important that the institution be able to complete these calculations accurately. However, in programming the family contribution formulas for use in IQCMP, errors were found in these worksheets. ED needs to be certain that these worksheets are correct and that educational institutions understand how to use them.

C. Remove Opportunities for Error

This corrective action strategy is aimed at reducing errors before they have an opportunity to occur. Corrective actions that could be implemented under this strategy involve eliminating data required to compute the financial aid award, requiring data to be supplied following specific formats or at specific times, and simplifying the delivery system.

The corrective actions suggested as part of this strategy require more substantive changes in the delivery system than do the other strategies. Because this strategy should eliminate opportunities for error, the error rates should decrease.

Three specific corrective actions that are designed to reduce opportunities for error are discussed below.

1. Simplification of the Financial Aid Formula

This corrective action, which has been discussed for several years in various forms, will involve a major investment in an overhaul of the financial aid delivery system.

Steps needed to implement a simplified formula include:

- Obtain legislation to authorize changes to the Pell SAI and Congressional Methodology formulas.
- Change the programs used to compute the family contribution formulas.
- Train financial aid administrators on differences in the formula.
- Revise ED policies and regulations to follow simplified formulas.
- Redesign ED publications including the financial aid application to reflect the simplified formulas.

Despite the initial costs involved in implementing a simplified formula, the potential for later savings may make simplification worthwhile. Potential benefits to be derived from simplification include a reduction in error rates, a decrease in the burden imposed on both students and institutions in the award process, and possible savings in the cost of processing and verifying student applications. Further study is needed to determine precise estimates for the savings potential of a simplified formula.

Chapter VI of this report discusses a simplified student aid formula proposed by NASFAA. This formula will simplify the aid process for many students, especially the neediest, while leading only to small redistributions in the aid awarded. Errors caused by those items eliminated from the formula, (e.g., work income, medical/dental expenses, and assets for most families with incomes less than $25,000, etc.) will be removed.

In addition to error reduction, this formula may increase the number of awards to the neediest students. Because those receiving public assistance will receive a full award

under the proposed formula, they may be encouraged to apply for aid. Estimating the number of additional students who would apply for aid under these circumstances is beyond the scope of IQCMP.

2. Revise Reporting Procedures for Pell Cost of Attendance

During the processing of IQCMP data, several cases were found to be in error because the institution failed to apply the regulatory limits to the components of cost of attendance in the Pell program. Because the cost of attendance is usually reported as one lump sum, the total cost of attendance could be within the program ceiling but still be too high if one component is higher than the regulatory cap.

There are two alternative corrective actions that could be used to eliminate this error. The first would be to require the schools to report each item within the cost of attendance separately, thus making a component that is above the limits obvious. The second option would be to eliminate the ceilings placed on the components of Pell cost of attendance. The disadvantage to this solution is that either the Pell awards would increase (i.e., student need would be greater because cost of attendance is higher and the family contribution remains the same) or the cost of attendance would have to be rescaled in order to hold Pell awards stable. Both of these corrective actions should significantly reduce cost of attendance errors. ED should decide between these alternative actions based on its policy goals.

3. Do Not Disburse Awards Based on Estimated Tax Data

As reported in the error profile analysis discussed in Chapter IV, filing a financial aid

application based on estimated tax data was linked to significantly increased student error. Although a student may need to file a financial aid application before a tax return is complete, the student usually will not receive disbursed funds until after a tax form is filed. We recommend that funds not be disbursed until after a student updates estimated tax data.

There are two possible methods for receiving updated tax data. The first is to send a letter to the student in late April which lists the student's estimated tax data. The student would be required to update the estimated tax data with correct tax information or to sign a statement certifying that the estimated tax data is correct. This method would place the burden of updating tax information on the student and would fit in with ED's traditional policy of relying on applicant integrity.

The second alternative for receiving updated tax information is to require that all students who use estimated tax data send a copy of their completed tax return to the postsecondary institution. Many students who used estimated data would be likely to update their SAR since the tax form would be available to the institution; however, the burden of verifying the tax data would lie with the institution. This method would likely lead to a greater reduction in errors than the previous method but would also be more burdensome to the institution.

No matter which of the above two methods is used to collect updated tax information, the award should not be disbursed until the updates are received by the awarding institution. This process could work similarly to that used to ensure that a financial

aid transcript is in the file of all transfer students. For special cases where the student should receive money before the tax return is filed, the institution could make one disbursement.

D. Provide Disincentives for Noncompliance

This corrective action strategy involves creating the perception that data will be checked and that the potential for stiff penalties more than offsets the benefits of error. To be fully successful, this strategy requires a delivery system that holds both students and institutions accountable for error and that uses only data elements that can be verified.

This strategy is primarily aimed at reducing intentional errors. Applicants who deliberately report incorrect information will not be as likely to do so if they perceive that they will be caught and punished. A secondary benefit of the strategy is potential reduction in unintentional errors because people will be more careful in completing the application if they know they will be penalized for an error.

Specific corrective actions that implement the strategy of providing disincentives for noncompliance are discussed below.

1. Require Specific Information on Household Size and Number in College

As reported in Chapter III, household size and number in college contribute significantly to student errors uncovered during IQCMP. While some of these errors are undoubtedly due to projecting error (i.e., students were asked to project the

household size and the number in college for the upcoming academic year), others are probably due to inaccurate reporting of the household size or number in college, either inadvertently or deliberately. Previous studies have suggested that changes in the family's circumstances is not a primary reason for errors in these two questions.

The IRS has had a similar problem with the number of dependents that people claim on tax forms. To correct this problem, the Service currently has tax filers complete a table that lists each dependent's name, social security number, and months in the household. The IRS has found that this information has reduced the number of dependents claimed in error, despite the fact that the data is seldom validated.

ED should use a similar table on the application to solicit information on household size and number in college. ED has considered this approach in the past, and rejected it due to cost considerations and limited space on the application. However, we believe the addition of a household size/number in college table will significantly improve the quality of application data, and should be reconsidered by ED.

An example of a table that could be used to collect information on an independent student's household size and number in college is shown on the following page. This table could also be used to track information during the verification process. Although it is unlikely that an institution will use the information on the form for purposes other than verification, applicants will understand that the institution could use this information and may complete their application more carefully.

Name	Relationship to Student	Claimed as Dependent on Tax Return (Yes or No)	Enrolled in College (Yes or No)	Institution Attending
1.	SELF		YES	
2.	SPOUSE			
3.				
4.				
5.				
6.				

Total Number in Household from Above: _____

Total Number in College from Above: _____

2. Require Specific Information on Home Value and Debt

As discussed previously, home value was found to be a leading source of student error in the Title IV programs. Home value is a difficult item to verify because there is often a lack of documentation on the real value of a home. Applicants probably tend to understate, either intentionally or unintentionally, the value of their family's home. We are proposing that ED collect specific information on home value and debt

including:

- Current home value,
- Current home debt,
- ZIP code of home,
- Original purchase price of home, and
- Year of purchase.

Information on home value could be scanned by ED or the institution for reasonableness using figures on the local real estate market indicated by the ZIP code. These figures could be obtained from local governments or private sources. This would be a time consuming process and would probably not be worthwhile unless a student is selected for verification or is suspected of error. However, we recommend that this information be included on the application because of the perception that home value could be checked. This perception might be enough to eliminate many reported inaccuracies in home values.

A pending congressional action may eliminate home value from the financial aid formula. In addition, several reauthorization proposals that are currently being considered are recommending deletion of home value because it is not a true liquid asset that can be used to pay for the costs of education. If home value is not eliminated, then ED should determine whether the added burden of collecting and using this information is offset by the savings from error reduction.

3. Apply Penalties More Frequently to Cases With Error

The Application for Federal Student Aid warns applicants that if they receive

assistance based on incorrect data they will have to pay it back and "may also have to pay fines and fees." The application continues on to warn, "If you purposely give **false or misleading information** on your application form, you may be fined $10,000, receive a prison sentence, or both." However, it appears that these penalties for giving faulty information, either intentionally or unintentionally, are seldom applied. Therefore, the student has no incentive to not "stretch the truth" about his financial situation because if he is verified and loses the aid, he will be no worse off than if he had provided the correct information in the first place.

ED should begin using fines more often for student applications with incorrect data. Applying small penalties to cases with intentional error will reduce future error by increasing the perceived likelihood of being caught. Although students probably do not view the postsecondary institution as an enforcement entity, and although enforcement is not a primary mission of ED, the perception of a significant ED enforcement presence is necessary to promote voluntary compliance by students.

E. Identify and Correct Errors After Occurrence

This corrective action strategy involves verifying data that has already been collected and ensuring that proper ED procedures are being followed by the institutions. The corrective actions in this strategy are relatively higher in cost since they involve personnel to check and correct past actions, instead of eliminating errors before they occur. However, it is important that ED maintain an oversight presence for institutions and students.

The Department of Education has already implemented corrective actions using this strategy. Integrated Verification focuses on catching student errors, and an institutional auditing and review policy focuses on uncovering institutional errors. However, as discussed in Chapter V on verification, it appears that targeting students for verification could be significantly improved. A full review of verification procedures was beyond the scope of IQCMP.

F. Enlist Educational Institutions in Efforts to Reduce Error

Many institutions already have a strong commitment to reducing error in the Title IV programs. Most institutions (over 84 percent) verify all ED-selected applicants, and almost 73 percent of institutions have institutional verification policies (i.e., students are verified who where not selected by ED). Nearly 43 percent of the institutions performing institutional verification say that they verify all students. This commitment to quality control should be encouraged by ED.

Quality control is implemented in the Title IV delivery system by assessing penalties for errors that are made by the institutions. There are few incentives in place to encourage the institutions to improve the quality of financial aid delivery beyond a level that is needed to avoid penalties. Under the current regulations, all schools are treated equally, regardless of their past performance as measured by error rates. Institutions that understand and apply quality control principles, and thus achieve lower error rates, may be spending too much time fulfilling regulations; some of this time might be better spent in implementing error reduction procedures geared toward their own institution. In order for a program such as this to be a success, monitoring

of the error rates for these institutions would be needed to ensure that quality control practices are not slipping.

One promising program that involves institutions in efforts to reduce error is the Institutional Quality Control Pilot Project. This project is still a relatively new project. It has been successful in recruiting institutions to participate, but reduction in error rates have not been as large as desired. The Pilot project represents a promising quality control program focusing on management practices and should be refined and continued.

Institutions that are not approved for, or that choose not to participate in, the Pilot project should also receive ED guidance in using quality control procedures to improve financial aid management. ED, through its training and dissemination offices, could provide a series of brochures or booklets on quality control procedures that institutions, especially those in the Pilot project, have successfully implemented. In addition, ED should continue to encourage institutions to develop quality control procedures and adopt procedures found to reduce error at other institutions. ED could promote commitment to quality control through its "Dear Colleague" letter and encourage schools to network with each other through NASFAA and other professional organizations.

G. Conclusions

The five corrective action strategies discussed above require different amounts off effort for implementation and will require minor to wholesale changes in the delivery

system. Exhibit VII-1 presents a summary of the extent of the modifications to the delivery system required to implement each corrective action strategy. The corrective actions suggested under each of these strategies can be implemented in any combination that is deemed appropriate to meet the Department's goals.

Despite the decrease in error rates found during IQCMP, error in the Title IV system is still significant. ED should review its goals for quality control, as well as the corrective actions discussed above, and develop a plan for reducing error rates consistent with its goals for providing quality service.

EXHIBIT VII-1

EXTENT OF MODIFICATIONS TO THE TITLE IV DELIVERY SYSTEM REQUIRED BY CORRECTIVE ACTION STRATEGIES

	Extent of Modifications	
Corrective Action Strategy	Minor	Major
Improve Communications With Students and Institutions	X	
Remove Opportunities for Error	X	X
Provide Disincentives for Noncompliance	X	
Identify and Correct Errors After Occurrence	X	
Enlist Educational Institutions in Efforts to Reduce Error		X

APPENDIX A -- STUDENT MARGINAL ERROR

Student marginal error refers to the error caused by the student misreporting an individual application item. Student marginal errors were calculated for three subpopulations: dependent students, independent students, and all students. The subpopulation used was determined by the group of students that had a value for that application item. For example, the marginal error for Student Adjusted Gross Income was calculated for all students, but marginal error for Parent Adjusted Gross Income was calculated for dependent students only. Similarly, marginal error for Student Number in College was calculated for independent students only.

All student marginal errors were calculated using a $50 tolerance, and measured for their effect on Pell absolute award, Campus-Based need, and Stafford Loan overcertification.

Chapter III presents significant student marginal error. This appendix presents a complete list of each application item's contribution to student error, listed by program in the following order:

- Exhibit A-1: Marginal error in the Pell Grant (dependent students only)
- Exhibit A-2: Marginal error in the Pell Grant (independent students only)
- Exhibit A-3: Marginal error in the Pell Grant (all students: dependent and independent)

- Exhibit A-4: Marginal error in Campus-Based need (dependent students only)
- Exhibit A-5: Marginal error in Campus-Based need (independent students only)
- Exhibit A-6: Marginal error in Campus-Based need (all students: dependent and independent)
- Exhibit A-7: Marginal error in Stafford Loan certification (dependent students only)
- Exhibit A-8: Marginal error in Stafford Loan certification (independent students only)
- Exhibit A-9: Marginal error in Stafford Loan certification (all students: dependent and independent)

STUDENT MARGINAL ERROR--PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' Household Size	15.5	3.4	283
Parent' Number in College	10.3	3.6	448
Parents' Home Value	6.6	2.3	444
Parents' Taxes Paid	3.7	0.6	202
Parents' 1987 Income	2.9	1.2	529
Parents' 1987 Other Untaxed Income and Benefits	1.9	0.4	248
Parents' Other Real/Investment Value	1.5	1.7	611
Mother's 1987 Income From Work	1.4	0.3	290
Parents' 1987 Social Security Benefits	1.4	0.3	249
Parents' Home Debt	1.4	0.2	178
Father's Expected 1988 Income From Work	1.2	0.3	296
Parents' 1987 Medical and Dental Expenses	0.9	0.1	129
Parents' 1987 Education Expense	0.7	0.1	186
Parents' 1987 Child Support Received	0.3	*	104
Parents' Business and Farm Value	0.1	0.2	1650
Parents' Cash, Checking, Savings Value	0.1	0.1	249

* Less than 0.05%

STUDENT MARGINAL ERROR--PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' Displaced Homemaker Status	0.1	*	900
Parents' Marital Status	0.1	*	100
Parents' Expected 1988 Other Taxable Income	0.1	*	500
Father's 1987 Income From Work	0.1	*	300
Parents' 1987 AFDC or ADC	0.1	*	172
Parents' Other Real Estate/ Investment Debt	0.1	*	316
Mother's Expected Income From Work	0.1	*	500
Parents' 1987 Filing Status	*	*	*
Parents' 1987 Itemized Deductions	*	*	*
Parents' 1987 Exemptions	*	*	*
Age of Older Parent	*	*	*
Parents' State Of Legal Residence	*	*	*
Parents' Expected 1988 Untaxed Income and Benefits	*	*	*
Parents' 1987 Children With Education Expense	*	*	*

* Less than 0.05%

Exhibit A-2

STUDENT MARGINAL ERROR--PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
INDEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's Household Size	2.9	1.1	576
Student's Number in College	1.4	0.5	521
Student's (& spouse's) 1987 Medical and Dental Expenses	*	*	*
Student's (& spouse's) 1987 Education Expenses	*	*	*
Student's (& spouse's) 1987 Children with Education Expenses	*	*	*
Student's Veterans Contributory Benefits Per Month	*	*	*
Student's Veterans Contributory Benefits Number of Months	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR--PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (and Spouse's) Cash, Savings, Checking	3.1	0.5	205
Student's (and Spouse's) Income	1.6	0.9	786
Student's (and Spouse's) 1987 Other Untaxed Income and Benefits	1.5	0.5	487
Student's (and Spouse's) 1987 Taxes Paid	0.9	0.1	139
Student's 1987 Work Income	0.7	0.2	290
Student's (& spouse's) Other Real Estate/Investment Value	0.5	0.3	729
Candidate For Bachelor's Degree	0.4	0.3	1332
Legal Dependent Other Than Spouse	0.4	0.2	589
Ward of Court	0.4	0.2	919
Student's Expected GI Bill--Dollars	0.4	0.1	576
Student's (& spouse's) Home Value	0.4	0.1	434
Student's (& spouse's) Expected 1988 Other Taxable Income	0.3	*	110
Year in College	0.2	0.3	1569
Student's (& spouse's) Dislocated Worker Status	0.2	0.1	1569
Spouse's Expected 1988 Income From Work	0.2	*	342

* Less than 0.05%

STUDENT MARGINAL ERROR--PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's Expected Income From Work	0.2	*	214
Student's (& spouse's) Expected 1988 Untaxed Income And Benefits	0.1	*	148
U.S. Armed Forces Veteran	0.1	*	183
Spouse's 1987 Income From Work	0.1	*	347
Student's (& spouse's) 1987 Child Support Received	0.1	*	122
Student's (& spouse's) 1987 Social Security Benefits	0.1	*	388
Student's Expected GI Bill--Months	0.1	*	147
Student's (& spouse's) 1987 AFDC or ADC	0.1	*	100
Student's (& spouse's) Home Debt	0.1	*	200
1985 Total Resources Of $4,000 or More	0.1	*	53
Student's State of Legal Residence	0.1	*	1700
Student's Marital Status	*	*	*
Student's (& spouse's) Displaced Homemaker Status	*	*	169
1987 Total Resources Of $4,000 or More	*	*	*
U.S. Citizen	*	*	*
Student's (& spouse's) Other Real Estate Debt	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR–PELL AWARD ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (& spouse's) 1987 Exemptions	*	*	*
Student's (& spouse's) Filing Status	*	*	142
Received Federal Student Aid 1987-88	*	*	*
Claimed as Exemptions on Parents 1987 Income Tax Return	*	*	*
Claimed as Exemptions on Parents 1986 Income Tax Return	*	*	*
Claimed as Exemptions on Parents 1988 Income Tax Return	*	*	*
1986 Total Resources Of $4,000 or More	*	*	*
Student's Date Of Birth	*	*	*
Student's (& spouse's) Business and Farm Value	*	*	*
Student's (& spouse's) Business and Farm Debt	*	*	*
Student's Itemized Deductions	*	*	155

* Less than 0.05%

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' Household Size	10.6	1.9	705
Parent' Number in College	8.3	2.6	1238
Parents' Home Value	7.7	1.0	489
Parents' 1987 Medical and Dental Expenses	4.5	•	235
Fathers' 1987 Income From Work	4.3	0.3	256
Parents' Other Real/Investment Value	4.0	0.4	396
Parents' Home Debt	3.9	•	340
Parents' 1987 Income	3.7	1.1	1145
Parents' 1987 Taxes Paid	3.6	0.2	230
Mother's 1987 Income From Work	3.2	0.2	237
Parents' Cash, Checking, Savings Value	2.5	•	268
Age of Older Parent	2.2	•	113
Parents' 1987 Other Untaxed Income And Benefits	1.8	0.2	435
Parents' 1987 Child Support Received	0.8	0.1	681

• Less than 0.05%

STUDENT MARGINAL ERROR–CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Mother's Expected 1988 Income From Work	0.5	0.1	662
Parents' Expected 1988 Other Taxable Income	0.3	0.1	828
Parents' Expected 1988 Untaxed Income and Benefits	0.3	0.1	2077
Parents' 1987 Social Security Benefits	0.2	•	448
Parents' Business and Farm Value	0.1	0.1	616
Parents' 1987 Education Expenses	0.1	•	186
Parents' Expected 1988 Other Taxable Income	0.1	•	1023
Parents' 1987 Itemized Deductions	0.1	•	194
Parents' Other Real Estate/ Investmet Debt	0.1	•	543
Parents' Displaced Homemaker Status	•	•	36
Parents' 1987 Exemptions	•	•	•
Parents' 1987 Children With Education Expenses	•	•	•
Parents' Marital Status	•	•	217

• Less than 0.05%

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' 1987 AFDC of ADC	•	•	500
Parents' 1987 Filing Status	•	•	•
Parents' State of Legal Residence	•	•	•

• Less than 0.05%

Exhibit A-5

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
INDEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's Number in College	3.5	0.2	261
Student's Household Size	3.4	1.2	1850
Student's (& spouse's) 1987 Medical and Dental Expenses	1.0	*	171
Student's (& spouse's) 1987 Education Expenses	0.2	*	88
Student's (& spouse's) 1987 Children with Education Expenses	*	*	*
Student's Veterans Contributory Benefits Per Month	*	*	*
Student's Veterans Contributory Benefits Number of Months	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (and Spouse's) Cash, Savings, Checking	4.3	0.3	299
Student's (and Spouse's) Income	3.8	0.5	645
Student's 1987 Work Income	3.6	0.3	335
Student's (and Spouse's) 1987 Total Untaxed Income and Benefits	2.4	0.5	843
Student's (& spouse's) 1987 Other Untaxed Income and Benefits	2.2	0.4	898
Student's (and Spouse's) 1987 Taxes Paid	1.9	0.1	225
Student's (and Spouse's) Real Estate/Investment Value	1.2	0.2	659
Year in College	0.8	*	192
Student's (and Spouse's) Home Value	0.6	0.4	3318
Spouse's 1987 Work Income	0.6	*	329
Student's (and Spouse's) Social Security Benefits	0.4	0.1	739
Ward of the Court	0.3	0.2	2412
Legal Dependents other than Spouse	0.3	*	830
Student's Expected 1988 Income From Work	0.3	*	171
Student's Expected 1988 Other Income	0.3	*	97

* Less than 0.05%

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (and Spouse's) Home Debt	0.2	*	661
Student's Expected GI Bill--Dollars	0.2	*	1275
Spouse's Expected 1988 Income From Work	0.2	*	377
Student Dislocated Worker Status	0.2	*	462
Student's Date of Birth	0.1	*	94
Student's Displaced Homemaker Status	0.1	*	489
Student's Expected GI Bill--Months	*	*	*
Student's (& spouse's) 1987 AFDC or ADC	*	*	*
1985 Total Resources Of $4,000 or More	*	*	*
Student's State of Legal Residence	*	*	140
Student's Marital Status	*	*	*
Student's 1987 AFDC or AFD	*		
1987 Total Resources Of $4,000 or More	*	*	*
U.S. Citizen	*	*	*
Candidate for a Bachelor's Degree	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR--CAMPUS-BASED NEED ERROR
Ranked by Frequency and Dollar Impact
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (& spouse's) Other Real Estate Investment Debt	*	*	*
Student's (& spouse's) 1987 Exemptions	*	*	*
Student's (& spouse's) Filing Status	*	*	140
Received Federal Student Aid 1987-88	*	*	155
Claimed as Exemptions on Parents 1987 Income Tax Return	*	*	*
Claimed as Exemptions on Parents 1986 Income Tax Return	*	*	1407
Claimed as Exemptions on Parents 1988 Income Tax Return	*	*	155
1986 Total Resources Of $4,000 or More	*	*	*
Student's (& spouse's) Itemized Deductions	*	*	*
Student's (& spouse's) Business And Farm Value	*	*	*
Student's (& spouse's) Business And Farm Debt	*	*	*
Veteran of the Armed Forces	*	*	1407
Student's 1987 Child Support Received	*	*	195
Student's Expected 1988 Untaxed Income	*	*	155

* Less than 0.05%

STUDENT MARGINAL ERROR--STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' Household Size	5.4	1.4	600
Parents' Home Value	4.0	1.0	541
Parents' 1987 Other Untaxed Income and Benefits	3.7	0.5	313
Parent' Number in College	2.6	1.2	1063
Parent's Social Security Benefits	2.6	0.7	613
Parents' Other Real/Investment Value	2.4	0.7	682
Parents' 1987 Income	1.6	1.2	1675
Parents' Home Debt	1.2	0.2	294
Father's 1987 Income From Work	1.2	0.1	264
Parents' Cash, Checking, Savings	1.1	*	147
Parents' 1987 Taxes Paid	1.0	0.3	741
Mother's 1987 Income From Work	0.7	0.1	205
Age of Older Parent	0.6	*	99
Parents' 1987 Child Support Received	0.4	0.2	1400
Parents' Business and Farm Value	0.4	0.1	444
Father's Expected 1988 Other Taxable Income	0.3	*	548

* Less than 0.05%

STUDENT MARGINAL ERROR–STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
DEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Parents' 1987 Medical and Dental Expenses	0.3	*	376
Parents' Expected 1988 Other Taxable Income	0.2	0.1	1563
Parents' Displaced Homemaker Status	0.1	*	406
Mother's Expected 1988 Income From Work	0.1	*	416
Parents' Marital Status	*	*	*
Parents' Expected 1988 Untaxed Income and Benefits	*	*	*
Parents' State of Legal Residence	*	*	*
Parents' 1987 Children With Educational Expense	*	*	*
Parents' 1987 Filing Status	*	*	*
Parents' 1987 Exemptions	*	*	*
Parents' 1987 Education Expenses	*	*	*
Parents' Other Real Estate / Investment Debt	*	*	*
Parents' 1987 AFDC or ADC	*	*	*
Parents' 1987 Itemized Deductions	*	*	*

* Less than 0.05%

Exhibit A-8

STUDENT MARGINAL ERROR--STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
INDEPENDENT STUDENTS ONLY

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's Household Size	0.7	1.0	4462
Student's Number In College	0.2	*	152
Student's (& spouse's) 1987 Education Expenses	*	*	*
Student's (& spouse's) 1987 Medical and Dental Expenses	*	*	*
Student's (& spouse's) 1987 Children with Education Expenses	*	*	*
Student's Veterans Contributory Benefits Per Month	*	*	*
Student's Veterans Contributory Benefits Number of Months	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR--STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (& spouse's) 1987 Income	2.2	1.0	1234
Student's (& spouse's) 1987 Other Untaxed Income and Benefits	1.5	0.4	748
Student's 1987 Income From Work	1.4	0.4	747
Student's 1987 Total Untaxed Income and Benefits	1.3	0.6	1159
Year in College	1.0	0.6	1538
Student's (& spouse's) Cash, Savings, Checking	1.0	0.1	170
Student's (& spouse's) 1987 Taxes	1.0	0.1	184
Student's (& spouse's) 1987 Social Security Benefits	1.0	*	742
Student's (& spouse's) Home Value	0.4	0.4	2382
Student's (& spouse's) Other Real Estate/Investment Value	0.4	0.2	1125
Spouse's 1987 Income From Work	0.2	*	186
Student's (& spouse's) Home Debt	0.1	*	136
Student's (& spouse's) Expected 1988 Untaxed Income and Benefits	0.1	*	136
Student's Expected GI Bill--Dollars	0.1	*	100
Student's (& spouse's) 1987 Child Support Received	*	*	156

* Less than 0.05%

STUDENT MARGINAL ERROR--STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
1987 Total Resources Of $4,000 or More	*	*	*
Claimed as Exemptions on Parents 1986 Income Tax Return	*	*	*
Student's (& spouse's) Other Real Estate/Investment Debt	*	*	*
Claimed as Exemptions on Parents 1987 Income Tax Return	*	*	*
U.S. Citizen	*	*	*
Student's (& spouse's) Dislocated Worker Status	*	*	*
U.S. Armed Forces Veteran	*	*	*
Student's (& spouse's) 1987 AFDC or ADC	*	*	*
Student's (& spouse's) Displaced Homemaker Status	*	*	*
Student's Expected GI Bill--Months	*	*	*
Student's Marital Status	*	*	336
Spouse's Expected 1988 Income	*	*	*
Student's Date of Birth	*	*	*
1986 Total Resources Of $4,000 or More	*	*	*

* Less than 0.05%

STUDENT MARGINAL ERROR--STAFFORD OVERCERTIFICATION ERROR
Ranked by Frequency and Dollar Error
ALL STUDENTS (DEPENDENT AND INDEPENDENT)

APPLICATION ITEM	PERCENT OF RECIPIENTS WITH ERROR	PERCENT OF DOLLARS IN ERROR	MEAN ERROR PER RECIPIENT WITH ERROR ($)
Student's (& spouse's) 1987 Exemptions	*	*	*
1985 Total Resources Of $4,000 or More	*	*	*
Legal Dependent Other Than Spouse	*	*	*
Student's Expected Income From Work	*	*	*
Student's (& spouse's) Filing Status	*	*	*
Student's (& spouse's) Itemized Deductions	*	*	*
Claimed as Exemptions on Parents 1988 Tax Return	*	*	*
Student's (& spouse's) Business/Farm Value	*	*	*
Ward of Court	*	*	*
Candidate For Bachelor's Degree	*	*	*
Received Federal Student Aid 1987-88	*	*	*
Student's (& spouse's) Business/Farm Debt	*	*	693
Student's (& spouse's) Expected 1988 Taxable Income	*	*	*
Student's State of Legal Residence	*	*	*

* Less than 0.05%

APPENDIX B -- VARIABLES ASSOCIATED WITH ERROR

This appendix presents the results of the contingency table analyses conducted as the first step in the profile error analysis presented in chapter IV. Contingency table analysis is used to determine associations between variables. For this study, contingency tables were used to examine the relationship between the incidence of error (with a $50 tolerance) and a variable.

As the first step in this analysis, categories were formed for all of the variables used in the analysis. For categorical variables (e.g., yes/no questions, institution type and control, etc.), categories were formed through a ranking process. Each value of a variable was assigned a score equal to the percentile represented by that value (e.g., the median value for family income was replaced by a score of 50). These scores were all between 0 and 100. The scores were the partitioned into the following categories:

- 10 or less,
- 11 - 25,
- 26 - 50,
- 51 - 75,
- 76 - 90, or
- 91 - 100.

After all the variables were categorized using one of the above methods, contingency tables were formed that compared the categories of each variable to the presence of

error (using a $50 tolerance).

Each variable tested for association with student error was tested on the relevant population of students (i.e., dependent, independent, or all). Parent data (e.g., parent's adjusted gross income and the number in the parent's household), which are reported only by dependent students, were tested on a subset of the database containing only dependent students. Similarly, variables that are reported only by independent students (e.g., student's household size) were tested using a subset of the database containing only independent students. Variables reported by both independent and dependent students (e.g., student's adjusted gross income) were tested using the full database of all students. Each variable tested for association with institutional error was tested on the entire population of students.

The remainder of this appendix consists of exhibits presenting the results of the contingency table analysis. The exhibits presented include:

- Variables Tested for Association with Student Error -- a listing of all of the variables tested for association with student error, whether the association was significant, and the category of the variable with the highest probability for error.
- Variables Associated With Student Error/Pell Grant Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.
- Variables Associated With Student Error/Campus-Based Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.

- Variables Associated With Student Error/Stafford Loan Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.

- Variables Tested for Association with Institutional Error -- a listing of all of the variables tested for association with institution error, whether the association was significant, and the category of the variable with the highest probability for error.

- Variables Associated With Institutional Error/Pell Grant Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.

- Variables Associated With Institutional Error/Campus-Based Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.

- Variables Associated With Institutional Error/Stafford Loan Program -- a listing of all variables that were significantly associated with error at the 0.05 significance level.

VARIABLES TESTED FOR ASSOCIATION WITH STUDENT ERROR

Student Characteristics	Significant[1] Association With Error	Category with Highest Probability of Error
AFDC Received	Yes	Without AFDC
Age	Yes	Under 22 years
AGI	Yes	Highest income
Application Date	No	N/A
Assets	No	N/A
Availability of Information Used to Fill Out Application	Yes	Don't know
Citizenship	No	N/A
Dependency Status	No	N/A
Difficulty in Understanding Application	Yes	Don't know
Elementary/Secondary Tuition	Yes	Have tuition expense
Family Assets	Yes	Highest assets
Family Income	Yes	Highest income
Grade Point Average	No	N/A
Home Value	Yes	Highest home value
Household Size	No	N/A
Legal Dependents Other Than Spouse	Yes	Have no legal dependents
Marital Status	Yes	Single
Medical/Dental Expenses	Yes	Have medical/dental expenses

[1] At 0.05 significance level.

VARIABLES TESTED FOR ASSOCIATION WITH STUDENT ERROR

Student Characteristics	Significant[2] Association With Error	Category with Highest Probability of Error
Net Assets	No	N/A
Net Family Assets	Yes	Highest Assets
Net Home Value	No	N/A
Number in College	No	N/A
Previous Bachelor's Degree	Yes	No previous degree
Received Campus-Based Aid	Yes	Received CB award
Received Help in Filing Financial Aid Application	Yes	Someone else filled out application
Sex	Yes	Male
Tax Form Filed	Yes	Estimated 1040A
Total Expenses	Yes	Highest expenses
Types of Aid Received	Yes	Highest number of awards
Untaxed Income	Yes	Least untaxed income
Veterans Status	Yes	Non veterans
Ward of the Court/Parents Deceased	No	N/A
Year in College	Yes	Undergraduate

[2] At 0.05 significance level.

VARIABLES TESTED FOR ASSOCIATION WITH STUDENT ERROR

Parent Characteristics for Dependent Students	Significant[1] Association With Error	Category with Highest Probability of Error
AFDC Received	Yes	Without AFDC
AGI	Yes	Highest income
Assets	Yes	Highest assets
Elementary/Secondary Tuition	No	N/A
Home Value	Yes	Highest home value
Household Size	No	N/A
Marital Status	No	N/A
Medical/Dental Expenses	Yes	Highest expenses
Net Home Value	Yes	Highest net home value
Net Assets	Yes	Highest net assets
Number in College	No	N/A
Tax Form Filed	Yes	Estimated 1040
Total Income	Yes	Highest income
Total Expenses	Yes	Highest expenses
Untaxed Income	Yes	Lowest untaxed income

[1] At 0.05 significance level.

VARIABLES TESTED FOR ASSOCIATION WITH STUDENT ERROR

Institutional Characteristics	Significant[4] Association With Error	Category with Highest Probability of Error
Control	Yes	Proprietary
How information is provided to students on importance of providing accurate data and consequences of misreporting	Yes	Information is not provided
Items verified for institution verification	Yes	Use IV items plus other items
Need Analysis Servicer used for largest number of students	Yes	Processor other than Federal
Policy on tax form collection	No	N/A
Region	No	N/A
Type	Yes	4 yr. Baccalaureate
Use of automation in addition to reports from outside sources	No	N/A
When information is provided to students on importance of providing accurate data and consequences of misreporting	No	N/A

[4] At 0.05 significance level.

VARIABLES ASSOCIATED WITH STUDENT ERROR*
PELL GRANT PROGRAM

Student Characteristics

Variable	Probability
AGI	0.000
Untaxed Income	0.000
Total Income	0.000
Family Income	0.000
Total Expenses	0.023
Elementary/Secondary Tuition	0.037
Net Assets	0.040
Family Assets	0.000
Net Family Assets	0.000
AFDC Received	0.000
Household Size	0.017
Age	0.000
Citizenship	0.019
Legal Dependents Other Than Spouse	0.000
Received Help in Filing Financial Aid Application	0.000
Marital Status	0.001

*At .05 significance level

VARIABLES ASSOCIATED WITH STUDENT ERROR*
PELL GRANT PROGRAM

Parent Characteristics for Dependent Students

Variable	Probability
AGI	0.000
Untaxed Income	0.006
Total Income	0.000
Total Expenses	0.000
Medical/Dental Expenses	0.032
Home Value	0.000
Net Home Value	0.000
Net Assets	0.000
Assets	0.000
AFDC Received	0.000
Tax Form Filed	0.000

*At .05 significance level

VARIABLES ASSOCIATED WITH STUDENT ERROR*
CAMPUS-BASED AID

Student Characteristics

Variable	Probability
AGI	0.000
Untaxed Income	0.000
Total Income	0.000
Family Income	0.000
Total Expenses	0.016
Medical/Dental Expenses	0.002
Family Assets	0.000
Net Family Assets	0.000
AFDC Received	0.000
Age	0.000
Year In College	0.004
Previous Bachelor's Degree	0.001
Legal Dependents Other Than Spouse	0.000
Sex	0.024
Received Help in Filing Financial Aid Application	0.000
Availability of Information Used to Fill Out Application	0.019
Marital Status	0.000
Tax Form Filed	0.042

*At .05 significance level

VARIABLES ASSOCIATED WITH STUDENT ERROR*
CAMPUS-BASED AID

Parent Characteristics for Dependent Students

Variable	Probability
AGI	0.000
Total Income	0.000
Total Expenses	0.000
Medical/Dental Expenses	0.004
Home Value	0.038
Net Home Value	0.042
AFDC Received	0.000
Tax Form Filed	0.001

*At .05 significance level

EXHIBIT B-4

VARIABLES ASSOCIATED WITH STUDENT ERROR*
STAFFORD LOAN PROGRAM

Student Characteristics

Variable	Probability
AGI	0.000
Total Income	0.000
Family Income	0.000
Total Expenses	0.044
Assets	0.033
Family Assets	0.000
Net Family Assets	0.000
Age	0.000
Year In College	0.018
Veterans Status	0.009
Legal Dependents Other Than Spouse	0.000
Received Help in Filing Financial Aid Application	0.035
Marital Status	0.000

Parent Characteristics for Dependent Students

AGI	0.016
Total Income	0.006
Total Expenses	0.007
Home Value	0.015
Net Home Value	0.011
Net Assets	0.002
Assets	0.008

*At .05 significance level

VARIABLES TESTED FOR ASSOCIATION WITH INSTITUTIONAL ERROR

Institutional Characteristics	Significant[1] Association With Error	Category with Highest Error Rate
Academic Calendar	No	N/A
Needs Analysis Servicer Used for Most Students	No	N/A
Title IV Programs Participated In	No	N/A
Use of Automation In Addition to Reports From Outside Sources	No	N/A
Do Institutional Verification	No	N/A
Policy on Tax Form Collection	Yes	From all students
Items Verified During Institutional Verification	No	N/A
Method to Re-check Institution Data and Calculations	No	N/A
Method to Re-check Files for Documentation	No	N/A
When Information Is Given to Students Regarding Importance of Accurate Data and Penalties for Error	No	N/A
How Information Is Given to Students Regarding Importance of Accurate Data and Penalties for Error	Yes	Information not given
Region of Country	Yes	No Pattern
Institution Type	Yes	Non-Baccalaureate Program
Institution Control	Yes	Proprietary

[1] At 0.05 significance level.

VARIABLES TESTED FOR ASSOCIATION WITH INSTITUTIONAL ERROR

Institutional Characteristics	Significant[2] Association With Error	Category with Highest Error Rate
Number of Title IV Awards	Yes	No pattern
Number of Full-Time Equivalent Staff	No	N/A
Title IV Awards Per Full-Time Equivalent Staff	Yes	No pattern
Title IV Awards Per Full-Time Equivalent Professional Staff	No	N/A
Student Characteristics		
Types of Aid Received by the Student	Yes	Number of Awards
Indicator That Student Received a Pell Grant	No	N/A
Indicator That Student Received a Campus-Based Award	Yes	Received C-B Award
Indicator That Student Received a Stafford Loan	Yes	Received SL Award
Student Dependency Status	No	N/A

[2] At 0.05 significance level.

EXHIBIT B-6

VARIABLES ASSOCIATED WITH INSTITUTIONAL ERROR

Pell Grant Program

Institutional Characteristics	Probability
Needs Analysis Servicer Used for Most Students	0.006
Method to Re-check Institution Data and Calculations	0.000
How Information Is Given to Students Regarding Importance of Accurate Data and Penalties for Error	0.000
Region of Country	0.039
Institution Type	0.005
Institution Control	0.033
Title IV Awards Per Full-Time Equivalent Staff	0.038

Student Characteristics	Probability
Types of Aid Received by the Student	0.000

EXHIBIT B-7

VARIABLES ASSOCIATED WITH INSTITUTIONAL ERROR

Campus-Based Program

Institutional Characteristics	Probability
Policy on Tax Form Collection	0.048
How Information Is Given to Students Regarding Importance of Accurate Data and Penalties for Error	0.001
Region of Country	0.006
Institution Type	0.000
Title IV Awards Per Full-Time Equivalent Professional Staff	0.021

Student Characteristics	Probability
Types of Aid Received by the Student	0.000
Indicator That Student Received a Pell	0.002
Indicator That Student Received a Stafford Loan	0.002

EXHIBIT B-8

VARIABLES ASSOCIATED WITH INSTITUTIONAL ERROR

Stafford Loan Program

Institutional Characteristics	Probability
Needs Analysis Servicer Used for Most Students	0.022
Method to Re-check Institution Data and Calculations	0.013
How Information Is Given to Students Regarding Importance of Accurate Data and Penalties for Error	0.000
Region of Country	0.039
Institution Type	0.042
Institution Control	0.019
Number of Title IV Awards	0.040

Student Characteristics	Probability
Types of Aid Received by the Student	0.000
Indicator That Student Received a Pell	0.000
Indicator That Student Received a Campus-Based Award	0.036
Dependency Status	0.000

APPENDIX C -- FEDERAL GOVERNMENT COSTS PER DOLLAR OF STAFFORD LOAN

This appendix presents a reproduction of the worksheets used by ED to determine the cost of each dollar that is loaned through the Stafford Loan program. This worksheet was provided for use in estimating the cost to the Federal government for Stafford Overaward errors.

EXHIBIT C-1

LIFE OF LOAN PER DOLLAR COSTS OF "TYPICAL" STAFFORD LOAN

OBLIGATIONS	
INTEREST SUBSIDIES	
Interest Benefits	0.240
Special Allowance	0.198
Subtotal	0.438
OTHER SUBSIDIES	
Administrative Cost Allowance	0.010
DEFAULTS & RELATED COSTS	
Defaults	0.140
Death and Disability	0.004
Bankruptcy	0.006
Subtotal	0.150
TOTAL OBLIGATIONS	0.598
RECEIPTS	
Loan Obligation Fee	0.050
Collections	0.035
TOTAL RECEIPTS	0.085
NET COST	0.513

ASSUMPTIONS/NOTES:

(1) T-bill rates are assumed as 0.078.
(2) In school life of loan = 3.0 yrs (2.5+0.5 grace period).
(3) Repayment period = 7 years.
(4) Interest rate=0.08.
(5) For default, death and disability, and bankruptcy rates, current experience is assumed.
(6) Administrative Cost Allowance is assumed to be paid.

This data represents estimates from the Department of Education as of 11/21/89.

APPENDIX D -- EXAMPLES OF CONTINGENCY TABLE ANALYSIS

This appendix presents two examples of the contingency table analysis used during early stages of the error profile analysis. The two exhibits are as follows:

- Example of Contingency Table Analysis for Institution Error
- Example of Contingency Table Analysis for Student Error

EXAMPLE OF CONTINGENCY TABLE ANALYSIS FOR INSTITUTION ERROR

Which of the following statements best expresses your policy regarding submission of Federal income tax returns or statements of non-filing?

IFLAG Institution Error — VALUE Response

FREQUENCY / COL PCT	All students and parents must submit (1)	All ED selected students and parents submit (2)	All verified students and parents submit (4)	Other	TOTAL
NO	786 77.29	268 79.29	899 82.70	75 84.27	2028
YES	231 22.71	70 20.71	188 17.30	14 15.73	503
TOTAL	1017	338	1087	89	2531

STATISTICS FOR TABLE OF IFLAG BY VALUE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	3	10.798	0.013
LIKELIHOOD RATIO CHI-SQUARE	3	10.840	0.013
MANTEL-HAENSZEL CHI-SQUARE	1	1.525	0.217
PHI		0.065	
CONTINGENCY COEFFICIENT		0.065	
CRAMER'S V		0.065	

SAMPLE SIZE = 2531

EXAMPLE OF CONTINGENCY TABLE ANALYSIS FOR STUDENT ERROR

SFLAG VALUE
Student Student's Adjusted Gross Income
Error

FREQUENCY / COL PCT	$0 and Under 10	$1 - $600 25	$601 - $2,689 50	$2,690 - $6,585 75	$6,586 - $15,553 90	$15,554 and Over 100	TOTAL
No	332	82	369	431	294	181	1689
	68.03	55.78	58.57	68.09	77.57	71.26	
Yes	156	65	261	202	85	73	842
	31.97	44.22	41.43	31.91	22.43	28.74	
TOTAL	488	147	630	633	379	254	2531

STATISTICS FOR TABLE OF SFLAG BY VALUE

STATISTIC	DF	VALUE	PROB
CHI-SQUARE	5	50.142	0.000
LIKELIHOOD RATIO CHI-SQUARE	5	50.632	0.000
MANTEL-HAENSZEL CHI-SQUARE	1	12.802	0.000
PHI		0.141	
CONTINGENCY COEFFICIENT		0.139	
CRAMER'S V		0.141	

SAMPLE SIZE = 2531